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If there is organic disease of the endocrine glands our present methods of examination can reveal it. If such signs are lacking we are thrown back on a functional disturbance of one of the endocrine glands which control sugar metabolism or on a loss of balance between them, either of which conditions must be due to nervous stimuli. And it is in the sympathetic that we find the one nervous control common to them all.

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1. *Syphilitic Meningitis.*

A syphilitic meningitis at the base of the brain is responsible for a large proportion of the cases. Futcher laid emphasis on the frequency with which this is the cause of diabetes insipidus in children. It is, therefore, imperative that in every case the Wassermann reaction should be tried before treatment is undertaken. I have obtained a strongly positive reaction in a boy of 13 with diabetes insipidus, who certainly presented no other stigmata of congenital syphilis.

The following is an instance of this type in an adult which came under my observation. A woman at the age of 40 married for the second time. Two years later she suddenly began to pass 25 pints of urine a day. The Wassermann reaction was strongly positive. She improved on anti-syphilitic treatment and valerian, but two years later the reaction was still strongly positive although the quantity of urine had fallen to nine pints. The thirst and polyuria were certainly better when she had valerian as well as mercury and iodide. A curious feature of this case was the way her tissues remained fat and flabby throughout. She showed none of that desiccation so often seen in this disease.

The fact that the nearer the meningitis is to the inter-peduncular space the more apt is it to excite diabetes insipidus suggests in the light of the next type that irritation of the pituitary is the mechanism by which this specific form also is produced.

2. *Disease of the Pituitary Body.*

Frank disease of the pituitary body is responsible for another group of cases. Schaefer and Magnus found in 1901 that extracts of the posterior lobe of the pituitary had a marked diuretic action accompanied by increased kidney volume, while in 1906 Schaefer and Herring showed that the renal vessels were exempt from the otherwise general vaso-constrictor action of such extracts.

In a series of observations beginning in 1908 Cushing, in conjunction with Crowe and Homans, described polyuria in dogs after experimental manipulations of the pituitary body. Whereas total extirpation of the gland led to oliguria, partial extirpation, especially if involving the posterior lobe, almost always caused temporary polyuria.

In experiments conducted between 1910 and 1912 by Cushing, with Goetsch, Crowe, and Jacobson, it was found that the polyuria was more enduring if the hypophysial stalk were divided or obstructed, leaving the otherwise intact gland or a large part of it *in situ*. In one such case the polyuria persisted for six months. If a subcortical transplantation were made of an excised fragment of the posterior lobe it tended to prolong the polyuria, an observation which was also made independently by Schaefer.

In 1913 Cushing, Weed, and Jacobson traced sympathetic fibres to the gland from the first three thoracic nerves through the cervical sympathetic. Though they were chiefly concerned in observing the glycosuric response to stimulation of these nerves, they also noted the passage of abundant urine of low specific gravity.

The experimental conclusions would, therefore, appear to be that just as the pars intermedia contains a substance exciting glycosuria, the posterior lobe contains something capable of exciting diuresis, and that this might be brought into action by manipulation or transplantation of the posterior lobe, injection of its extract, or by stimulation of its sympathetic nerve-supply.

Turning to the clinical side. In 1912 Frank recorded the case of a bullet wound involving the posterior fossa which produced diabetes insipidus, and from an analysis of the literature urged strongly the pituitary factor in this disease. Fractures at the base of the skull may induce prolonged polyuria following a transient glycosuria, and the association of pituitary tumours with diabetes insipidus has been recognised since 1882. The occurrence of primary optic atrophy, bi-temporal hemianopsia, and some form of ophthalmoplegia is not unknown in diabetes insipidus, and would point strongly to pressure in the region of the pituitary fossa. In 1898 Bousfield recorded three consecutive cases of diabetes insipidus with primary optic atrophy. Out of 85 cases of bi-temporal hemianopsia collected by Frank 18 had diabetes insipidus. A striking case of Cushing's deserves more particular mention.

A woman, aged 40, was admitted with a history of headaches, vomiting, and drowsiness, followed by loss of vision, which had progressed to almost complete blindness, and convulsive seizures with an olfactory aura. Her Wassermann reaction was negative, and the blood pressure 110 mm. X ray examination showed that the outlines of the pituitary fossa were completely obliterated. Such light as could be perceived was on the nasal halves of the visual field. The pupils were dilated, reacting but sluggishly to bright light, and that better when thrown from the nasal sides. There was bi-lateral primary optic atrophy and complete anosmia. Tolerance for levulose was raised to 200 g. Sellar decompression by the trans-sphenoidal root revealed the anterior lobe of the pituitary body flattened, presumably by a tumour behind it. This operation was followed by persistent polyuria reaching 12 litres a day. Her thirst was unquenchable, and a jar of water had to be kept at the head of the bed with a tube attached to it, which she sucked almost continuously. Restriction of the liquid intake caused too much distress to justify its continuance. Tests showed that the functional activity of the kidneys for the excretion of solids was unimpaired. A right sub-temporal decompression was next undertaken with ultimate relief of the headaches and polyuria, though the olfactory aura, convulsions, blindness, and drowsiness remained.

One may presume that the first operation relieved pressure on the posterior lobe sufficiently to allow a return of its function, but not sufficiently to save it from irritation, and that this was accomplished by the second operation.

3. *Primary Defect in the Kidneys.*

A third type is that described by Meyer in 1905. He regarded diabetes insipidus as due to a primary defect in the kidneys, the patient being incapable of secreting urine of normal concentration, so that he requires a much greater quantity of water to remove the normal products of metabolism. He found that in this type 20 g. of sodium chloride would cause a marked diuresis, but not in the other types where the kidneys, being sound, could respond by temporarily increasing the concentration of the urine.

In this renal type of the disease the excretion of the ingested salt may take a considerable time—often days. It

[1] Lectures I., II., and III. were published in THE LANCET of May 17th, 24th, and 31st, 1919.

will be noted that there is a resemblance between this condition and interstitial nephritis, in which the power of secreting concentrated urine and salt is also distinctly reduced, while the minute trace of albumin is hardly recognisable in such a large amount of fluid. Indeed, in some post-mortem records of cases classified as diabetes insipidus it is by no means clear that the patient has not really suffered from chronic interstitial nephritis. Saundby has stated that in diabetes insipidus the cause of death may be the gradual destruction of kidney substance, producing uræmia. He was evidently describing an example of this renal incapacity.

Observations on the blood pressure are badly needed. If this proves to be distinctly raised it provides an additional point of resemblance with interstitial nephritis. Meyer has introduced an interesting test for recognising this condition. Theocin-sodium acetate increases the permeability of the kidney, and where this permeability is reduced for solids the drug, by facilitating their excretion, does away with the necessity for further dilution of the urine. Hence, though it ordinarily acts as a diuretic, here it merely raises the concentration of the urine without increasing the amount of fluid. Applying this test in a case of syphilitic origin I found that 2 gr. of theocin sodium acetate twice a day raised the excretion of water from 5600 to 8000 c.cm., showing that there was here no renal incapacity.

It follows that restriction of the ingested fluids is a futile and cruel procedure in this third type. The patient must excrete a dilute fluid, and if fluid is not given to him he must obtain it from his own tissues. He loses weight and the output of nitrogen rises, showing that the deprivation of water is producing tissue breakdown. This increased excretion of nitrogen in turn demands more excretion of water. The appetite and the general health will soon suffer, while the distress from thirst becomes extreme.

But I am not yet satisfied that even this type is entirely distinct from the pituitary type. In the syndrome of infantilism with interstitial nephritis and recrudescent rickets described by Dr. Morley Fletcher the pituitary may be enlarged and the condition approximates to this renal type of diabetes insipidus. I would urge, however, that this type should not be classed as diabetes insipidus; it is essentially a form of chronic interstitial nephritis.

4. *Resulting from Polydipsia.*

But there is a type remaining which shows no evidence of syphilitic meningitis, pituitary disease, or renal incapacity. The polyuria is generally regarded as secondary to polydipsia. The following two cases illustrate this.

(*a*) A young man came under my observation who had had polyuria varying from 5300-9000 c.cm. a day since the age of 17. The Wassermann reaction was negative. X rays showed nothing abnormal in the pituitary fossa, and theocin-sodium acetate did not produce diuresis nor diminution in the urine. Glycosuria produced by the injection of phloridzin appeared and disappeared normally. Sodium chloride was readily excreted, as shown by the fact that his output having been determined for several days on a low salt intake as 3 g., 20 g. were given in one dose and 21 g. were excreted in the following 24 hours, showing that only 2 g. of the total amount had not been eliminated. Restriction of the intake of fluid produced a diminution in the output, and valerian had a definite effect in diminishing thirst. Under treatment he still passes about 3500 c.cm. of urine a day.

(*b*) In 1908 a girl, aged 18, who had been much distressed by the death of her sister, began to suffer much from thirst, and was found to be passing 16½ pints of urine a day. She has attended St. Bartholomew's Hospital both as an out- and in-patient ever since. During the earlier part of the time she was under the care of Dr. Morley Fletcher, and during the latter part under mine. I am indebted to Dr. Fletcher for permission to embody his observations with mine. Her intake of liquid generally exceeded the output. Thus on ten consecutive days the average intake was 219 oz. and the output 176 oz. On a saltless diet the average intake on five consecutive days was 174, the output 146 oz. Thus deprivation of salt lowered the intake by 45 oz. and the output by only 30, suggesting that salt acted by increasing thirst rather than by calling for greater dilution of the urine. Indeed, tests showed salt to be eliminated normally, so that it was not a case of renal incapacity. The Wassermann reaction was negative, and a skiagram showed a normal pituitary fossa. She responds well to valerian in large doses.

Whereas in the syphilitic group I have noted that the amount of urine exceeded the liquid drunk, in this last group the two either balanced or the liquid imbibed exceeded the amount of urine. Buttersack believes the latter condition points to a primary polydipsia, and notes that in such cases there is a normal secretion of sweat. Ralfe advised that if the liquids ingested and excreted approximately balance the amount of fluid drunk should be reduced by two pints. If this is followed by a fall in the liquid excreted the fluid drunk is reduced by another pint every three days, but as soon as there is any more reduction in diuresis the intake should not be restricted any further. It should be noted that this method was originally suggested for diabetes insipidus in general, but from the foregoing considerations it will be clear that it is only likely to meet with success in cases secondary to polydipsia. But even in this type it will not be found possible to diminish the urinary excretion to a normal level. A point will be reached at which further restriction of the intake will lead to great distress without a fall in the output. It cannot be, then, merely the result of a perverted thirst, for in that case if the patient were prevented from gratifying that thirst the diuresis would fall, even though at the cost of much discomfort. I can confirm the general belief in the benefit derived from the free administration of valerian in this type, and even in the syphilitic type, when combined with antisyphilitic treatment. Dr. Morley Fletcher suggested to me that valerian without antisyphilitic treatment would be just as efficacious, but I have not found it so in the cases where I have tried it.

A Common Factor.

I have, however, noted in the syphilitic type that valerian would cause the output which previously exceeded the intake to fall below it. Such observations make it unlikely that the first and fourth types I have described are completely separate. I have shown that the first type probably acts by irritation of the pituitary, that the second *ipso facto* does so, that in the third the pituitary cannot be exonerated, and it is naturally tempting to assume that even in this fourth type there is nervous irritation of the pituitary when we know that the same drug can help and when we find nervous ties between the medulla and the pituitary by the curiously indirect course provided by the sympathetic. The influence of shock and emotion in invoking this form of diabetes insipidus on such an hypothesis would afford an explanation of nervous and hysterical polyuria as due to a transient emotional disturbance passing along the same channel. At the present time it seems to me that a structural or nervous irritation of the posterior lobe of the pituitary affords the most plausible explanation of diabetes insipidus. The benefit sometimes derived both in diabetes mellitus and insipidus from the administration of codein is a further suggestive and interesting point.

I think we may fairly rank diabetes insipidus without local lesions among the diseases due to the sympathetic.

But even adopting the view that it is the pars intermedia which controls carbohydrate metabolism while the posterior lobe influences diuresis, there is a discrepancy between the glycosuric and diuretic reactions which we must all have felt, and which Cushing has clearly indicated. Pituitary glycosuria may be produced alike by the administration of extracts, direct glandular stimulation, and stimulation of the sympathetic nerves to the gland, or by disease producing glandular hyperplasia, while extirpation of the gland or hypoplasia due to the disease results in increased sugar tolerance. In regard to the diuretic response, however, although administration of extracts, direct glandular stimulation, or sympathetic stimulation will all induce polyuria, experimental extirpation or clinical hypo-pituitarism does not cause diminution of the urinary output. This discrepancy still awaits explanation. It is brought out in an interesting case related to me by Dr. C. H. Miller.

A young officer was admitted under his care for diabetes insipidus following some pyrexial attack at Salonika. He passed about 590 oz. of urine a day and drank a corresponding amount of fluid. The Wassermann reaction was negative, and there were no signs of pituitary tumour. Dr. Miller noted a thrombotic condition of the saphenous vein over the internal malleolus, which he had found more commonly in typhoid and paratyphoid fevers than in other conditions. The vein was hard, rigid, and solid like a tendon, the same condition extending back along the branch communicating with the deep veins among the calf muscles. He therefore had a stool examined, with the result that paratyphoid B organisms were found in pure culture. He

concluded that diabetes insipidus had been started by paratyphoid fever, the patient now being in the carrier stage of the disease. He tried the effect of pituitary extract, and found that great improvement followed immediately. The urine fell to 200 oz., the skin became moist, and the thirst much less. After a few injections pallor and faintness were produced, so they were suspended, but a week later another injection had a similarly good result. The urine decreased from 580 to 200 oz., he had no thirst, and his night's rest was undisturbed.

Dr. Miller's suggestion is that there was a partial disturbance of pituitary function as a result of paratyphoid fever. But if diabetes insipidus is associated with over-action of the posterior lobe, as our evidence suggests, it is difficult to see how the administration of pituitary extract could diminish the symptoms in the way here described. A similar antidiuretic effect of an extract of the posterior pituitary lobe in diabetes insipidus has been noted by Christie and Stewart,[2] which was accompanied by increased rate of blood-flow through the limbs. Such cases illustrate the gap in our knowledge of the relationship between diabetes insipidus and the pituitary body.

THE VASO-MOTOR SYSTEM IN DISEASE.

Time will not allow of more than the most general consideration of the vaso-motor system in disease. Briefly, the functions of the vaso-motor system are two: to regulate the general blood pressure and to regulate the local blood-supply. These functions are carried out by the vaso-motor centre in the medulla, aided by secondary centres in the cord.

The Receptor Channels.

The receptor channels for the vaso-motor reflexes are of two kinds:—

(*a*) *Pressor*, calling for a rise of blood pressure. All sensory nerves are pressor in their action, causing the vaso-motor centre to throw out increased constrictor impulses, particularly to the splanchnic area. This produces a rise of pressure in all painful conditions, as described in my first lecture.

(*b*) *Depressor*, producing a fall of blood pressure by causing the vaso-motor centre to relax the normal tone of the splanchnic area, which thereby becomes flushed with blood. The only pure depressor nerve is the depressor branch of the vagus. It may be regarded as a way of escape for the heart if it be labouring against too high a blood pressure. But the existence of depressor fibres in sensory nerves may also be demonstrated, since on regeneration after section they recover before the pressors, and on cooling they retain their function longer. Stimulation of the mucous membrane of the rectum and vagina may also produce a depressor effect, especially under light anæsthesia.

The Effector Channels.

The effector channels are also of two kinds:—

(*a*) *Constrictor.*—These are much the most numerous and are confined to the sympathetic. The connector element is comparatively short, the cell station generally being in the first sympathetic ganglion which is reached. Here the new post-ganglionic fibre starts and is distributed along the spinal nerves to the more superficial structures and along the blood-vessels to the deeper. This is the method of distribution whatever the part of the body to be supplied.

(*b*) *Dilator.*—These are not nearly so numerous. The muscular coats of the blood-vessels being always partly contracted it is possible for dilatation to be produced by inhibition of a constrictor. Pure dilator nerves will, therefore, only be found where there is a special need for marked and rapid dilatation, such as the chorda tympani to the submaxillary gland, the auriculo-temporal to the parotid gland, and the pelvic visceral nerve springing from the second and third sacrals. It will be noted that all these belong to the para-sympathetic system, and, therefore, have their ganglionic stations close to their destinations. The existence of dilator fibres in mixed nerve trunks have been proved by taking advantage of the fact that constrictors degenerate more quickly after section and are more readily affected by cooling than dilators, whereas dilator fibres are more easily stimulated by slow rhythmically repeated shocks. Dilator nerves to the limbs have appeared in a new aspect, however, since Bayliss has shown that they seem to be in every way identical with the sensory nerves. Under experimental conditions, at any rate, these fibres are able to carry "antidromic" impulses. That is to say, the same fibre is able to convey sensory impulses towards the brain and dilator impulses towards the periphery. In this way the blood-supply is simultaneously increased at the point where the painful impulse is *received* and where it is *perceived*, thus facilitating the appropriate reaction in each case.

[2] Arch. Int. Med., 1917, xx., 10.

The "Tripod" of Life.

At first sight it is not a little surprising that the organs composing the "tripod" of life—the brain, the lungs, and the heart—either lack or are very scantily supplied by vaso-motor nerves. Yet on consideration it will be clear, as I pointed out in 1908, that it is just because they are so important that they cannot be subservient, for the vaso-motor can override the local needs for the general demand. The efferent part in a reflex arc is open to impulses coming from many quarters, although the efferent channel is reserved for impulses coming from the particular organ it supplies. The organs composing the "tripod" of life cannot allow their needs to be subordinated in this way. This may cause them in disease to override the interests of the general economy for their own advantage, though it is merely an example of the survival of the fittest, the most vital organs being protected at all costs. We may consider some of the results of the exemption of the "tripod" of brain, lungs, and heart from the operation of this action of the vaso-motor system.

THE BRAIN AND THE VASO-MOTOR SYSTEM.

Munro in 1783 enunciated the dictum that the quantity of blood in the cranium is a constant, since the brain substance is incompressible and enclosed in a rigid box. Allowing for variations in the quantity of cerebro-spinal fluid this is true. The first effect of a rise of arterial pressure will be to express the cerebro-spinal fluid from the cranium, and then to compress the cerebral sinuses until the pressure in them rises to that which the brain substance exerts against them. Thus the conditions approximate to those obtaining in a system of rigid tubes. Now the one part of the brain that must keep up its supply of arterial blood is the medulla, for here are the centres that are essential to life. If the blood supplied be too rich in carbon dioxide, the respiratory centre is excited to increase the respiratory rhythm; if the quantity of blood be not adequate, the vaso-motor centre is excited by the slightest degree of cerebral anæmia to contract the vessels in the great splanchnic pool, and thus force more blood up to the head. There are two ways in which the blood-supply to a part may be increased—local vaso-dilatation, or vaso-constriction elsewhere. In a rigid box a local relaxation of muscular tone would not be very effective, for it might be overridden easily by the intracranial pressure already existing. To force the blood in by a general rise of blood pressure is to employ a much more powerful mechanism. Thus it is we find that the blood-supply to the brain is mainly controlled by means of the splanchnic area, which, in its turn, is controlled by the vaso-motor centre within the cranium.

This does not mean that there are no vaso-motor nerves in the cerebral vessels—such have been found by Morison and by Gulland—and perfusion of adrenalin will cause a slight contraction of these vessels. But it is safe to assert that they must play an entirely subsidiary part, and that all the vaso-motor effects ordinarily observed can be adequately explained without reference to them.

To avoid cerebral anæmia the general blood pressure must be kept at a point above the intracranial pressure. This was clearly proved by Cushing, who adopted the method of varying the intracranial pressure by introducing normal saline solution into the cranial cavity from a pressure bottle. The effect on the general blood pressure was observed by means of a tracing taken from the femoral artery. Until the intracranial pressure exceeded the blood pressure, nothing more than a slight quickening of pulse and respiration occurred, and even this could be avoided if the fluid did not interfere with the sensitive dura. But when that point was reached the blood pressure was at once raised until it was again greater than the intracranial pressure. This was repeated with each increase of intracranial pressure until the blood pressure was forced to a level considerably over 200 mm. of mercury. Then the vaso-motor centre began to show signs of giving way. The splanchnic area could be seen to contract every time the brain was compressed, and to

dilate again as the pressure fell. If the vagi were divided before the compression was applied, the blood pressure could be seen to correspond even more closely than before to the degree of intracranial tension, always remaining slightly higher. If both vagi and spinal cord were thus divided, an increase in intracranial tension did not affect the level of the blood pressure in the slightest degree, showing that the adjustment is brought about by constriction of the blood-vessels in the rest of the body. This has a practical bearing on the treatment of cerebral hæmorrhage. If we reduce blood pressure—e.g., by venesection or amyl nitrite—to the point at which the reduction will be effective in checking the hæmorrhage, we are obviously in danger of reducing it to the point at which the medulla is starved. (Leonard Williams.) The absolute necessity of maintaining the blood pressure at a higher level than the intracranial establishes a vicious circle, for the hæmorrhage produces a rise of pressure, and the rise of pressure increases the hæmorrhage. A rising blood pressure in cerebral hæmorrhage is of very grave prognosis, as it shows the bleeding is still continuing.

It may be asked how a cerebral hæmorrhage can ever be recovered from. The answer appears to be that the tentorium can shelter the medullary centres from some of the ill-effects of the high intracranial pressure existing above it. The rapidly fatal effect of even small pontine hæmorrhages supports the idea, for here no such shelter is possible.

Is there any way of lowering intracranial pressure directly? Then the vaso-motor centre would allow the blood pressure to fall; this would assist the arrest of hæmorrhage, and the vicious circle would be broken.

Lumbar puncture will diminish intracranial tension, and has, therefore, been recommended in such cases. It has been thought to be risky, in that it will leave the arteries less supported and therefore more liable to bleed. My answer to this is that as soon as the intracranial pressure is reduced the blood pressure will fall, and therefore the liability to hæmorrhage is diminished. That the blood pressure can be reduced in this way I have had the opportunity of observing. A man in whom I had diagnosed cerebral hæmorrhage had a blood pressure rising from 165 to 210 mm. Lumbar puncture withdrew blood-stained cerebro-spinal fluid. The pressure fell at once to 175, and then more gradually to 135 mm., while consciousness was soon regained.

Cushing's experiments also explain why we so frequently find more than one hæmorrhage into the brain substance, if the initial one be at all large. If looked for, small hæmorrhages into the pons will be found very commonly in cases of ordinary lenticulostriate hæmorrhage. It was formerly a puzzle to decide how these were produced, and whether they occurred simultaneously with, before, or after the large hæmorrhage. It is now clear that the large hæmorrhage is responsible for driving up the general blood pressure so much that diseased arteries in other parts of the brain are unable to withstand the strain.

THE LUNGS AND THE VASO-MOTOR SYSTEM.

The absence of direct vaso-motor effects in the pulmonary vessels has some interesting bearings on the treatment of hæmoptysis. It must be remembered, however, that the lung receives blood by another channel also—the bronchial arteries springing from the aorta. In the hæmoptysis of mitral stenosis the pulmonary vessels alone are involved; adrenalin and other constrictors will therefore do harm by forcing blood from the systemic into the pulmonary vessels. But nitrites may do good, because they will relieve the engorged lung by dilating the systemic vessels. In the hæmoptysis of phthisis either pulmonary or bronchial vessels may be eroded, though the former are more likely to be implicated, since they are more numerous. But styptic drugs would be inadvisable, even if we could be sure that a bronchial artery were the source of the hæmorrhage, for any benefit derived from their local action would be outweighed by the general rise of pressure and by the pulmonary turgescence, which might cause other weak spots to rupture. Nitrites might still be useful, as the widespread dilatation would draw blood away from the lungs, and thus more than counterbalance the risks of reopening the bleeding point. Also the lowered pressure would favour the sealing of this point by blood-clot. The same principles would therefore guide us, whichever set of vessels were involved.

Œdema of the lungs is a common terminal event. In Cohnheim's phrase, a man does not die because he gets œdema of the lung; he gets œdema of the lung because he is dying. It is held to indicate a somewhat rapid failure of the left ventricle, while the right ventricle continues to beat forcibly. As there is no vaso-constrictor action in the pulmonary vessels there is nothing to prevent engorgement of the lung capillaries, and an effusion must occur in the alveoli.

Sometimes an acute œdema of the lungs may occur.

A patient with high blood pressure and often with aortic disease is seized, generally while recumbent, with sudden dyspnœa and cyanosis. He becomes greatly distressed, throwing himself about or coughing incessantly. Then a quantity of fine froth, often blood-stained, begins to issue continuously from nose and mouth. Death may occur within a few minutes, and will not be delayed beyond a few hours if the condition cannot be relieved.

As the heart continues to beat strongly after the patient is apparently suffocated it might be urged that death could not be from syncope. But it seems likely that the forcible sounds are produced by the right heart. The most probable sequence of events is this. The left heart is already loaded to its full capacity; the proverbial last straw is too much for it and it breaks down, while the right heart still goes on beating, forcing blood into the lungs until they become engorged, since they are unable to shut off any of the blood-supply by vaso-constriction.

An out-pouring of serum occurs into the alveoli in such quantities that the patient is drowned in his own secretion. Two facts support this view: the commonest cardiac lesion in these cases is aortic regurgitation, which is known to terminate not infrequently in sudden stoppage of the heart; and venesection (10 to 12 oz.), according to French authorities, is the only effective treatment, and this would relieve the overloaded right heart and the stagnant pulmonary circulation.

THE HEART IN HYPERTENSION.

It is not difficult to understand the absence of vaso-constrictors to the coronary arteries. If a rise of general blood pressure is produced by vaso-constriction, the heart is given more work to do, so that a better blood-supply must be given to its muscle. If vaso-constriction took place in the coronaries their blood-supply would be diminished, but in its absence the rise of pressure automatically forces more blood into them. If the heart has less work to do, the blood pressure falls and the coronaries receive less blood. In this way the supply to the heart muscle is made proportional to its requirements. The power of compensation is extraordinary so long as the coronary arteries remain supple, but if they become atheromatous this means of regulation is frustrated and compensation breaks down.

Starling's recent work on the heart has thrown a new light on the association of high blood pressure with heart disease. It is often a surprise to find that when the heart is failing and the pulse feeble that blood pressure is quite high—perhaps 200 mm., or even more. The first explanation that occurs is that the heart is failing behind the high pressure, but if so, lowering the pressure should relieve the heart, which, as a matter of fact, it fails to do. The next explanation offered was that as the output of the heart diminishes, vaso-constriction must occur to diminish the size of the bed to be filled, and thus to spare the heart. This would account for pressure being maintained at its normal level, but not for its rising as the heart fails. But we now know that the strongest stimulus to a muscular contraction is the previous stretching. Hence the profound disturbance to cardiac rhythm resulting from pericardial effusion, for this interferes with diastolic filling, and therefore with the stretching of the cardiac muscle. Hence also the marked hypertrophy of the left ventricle in aortic regurgitation, where the ventricle is filled during diastole both from the auricle and from the aorta, and so is stimulated to increased work. In the same way we may regard the vaso-constriction produced through the sympathetic as an attempt by raising blood pressure to stimulate the flagging heart, for the diastolic stretching will be increased thereby. But when the myocardium is diseased it fails to respond to a remedy which is at best a desperate one—the overstretched muscle does not react and dilatation increases.

Pope has calculated the enormous amount of work which the heart normally performs. If it only pumps 2½ ounces of

blood at each contraction (and it usually pumps more) this amounts to 7½ tons of blood a day; when the pressure is normal this is equivalent to lifting a ton of blood 122 ft. high. This gives us some idea of the great extra work which is imposed on the heart if it has to lift the blood not against a pressure of 120 mm., but, say, 180 or 200 mm.

And so it comes about that anything which leads to the maintenance of an unduly high pressure must use up the cardiac reserve. The rise of pressure so common in later life must thereby in itself shorten the remaining span of years. This does not mean that in vaso-dilator drugs is to be found the elixir of life. Quite the contrary, for we know that the rise of pressure is in itself a necessary and conservative measure, and that to lower pressure directly without attacking the cause of its rise is to invite disaster.

The height of the diastolic pressure is often of more importance than the systolic tension. It is far less subject to temporary variation and it indicates more exactly the resistance which the heart has to overcome. A constant diastolic pressure of or above 100 mm. indicates hypertension according to Norris, regardless of whether the systolic pressure be 130 or 140 mm. Stone points out that, taking the systolic pressure at 120 and the diastolic pressure at 80, the pulse pressure is 40, so that the amount of energy expended in maintaining the circulation in excess of that required to open the aortic valve is 50 per cent. of the diastolic pressure. Therefore, with a systolic pressure of 170 and a diastolic pressure of 100 mm. the pulse pressure would be 70 per cent. of the diastolic and would represent an overload of 20 per cent. He finds that clinical symptoms do not appear until the overload exceeds 25 per cent., and that when it reaches 50 per cent. myocardial exhaustion may be precipitated by any sudden strain. That the vessel wall can hypertrophy to maintain the raised pressure is shown by the interesting observation of Fischer and Schmieden that the transplantation of sections of a vein into an artery by Carrel's method does not lead to a dilatation of the vein despite the greater pressure to which it is exposed in its new position; in fact, a thickening and decrease of its calibre result.

Theories of the Origin of Hypertension.

The belief that a rise of blood pressure can occur before structural muscular lesions take place has been put forward by von Basch, by Huchard, and by Clifford Allbutt. Though not universally accepted, such a view is in accord with what we know of the general vaso-constrictor effect of sympathetic stimulation. It is supported by Norris's observation that "periods of arterial hypertension are often traceable to hygienic or dietetic variations; they are very closely associated with psychic phenomena which are generally by far the most potent factors for good or ill."

The discovery by Barger and Dale of diamine bodies resulting from putrefactive decomposition of proteins, which have a pressor effect, may explain how dietetic factors can produce hypertension. And I showed in my second lecture how sympathetic irritation will produce stasis in the bowel both by inhibiting adequate peristalsis and by exciting spasm of the several sphincters. Such stasis must increase putrefactive changes and can thus play a part in raising blood pressure.

But I am not going to attempt to discuss all the causes of rise of blood pressure. That would lead us too far afield. I only wish to indicate certain ways in which the sympathetic nervous system plays a part. And, incidentally, I would point out that we must not attribute too large a part to renal lesions in the *causation* of high pressure. For, as Janeway said: "Amyloid disease, which is *par excellence* a disease of the glomeruli in its pure form, is almost invariably without effect on the blood pressure." It is true that Lee [3] found in a series of post-mortem examinations on cases of hypertension that all patients who had a pressure constantly or repeatedly above 200 mm. had some renal disease. But post-mortems only show the terminal stage, and do not throw light on the inception of raised pressure.

HYPOTENSION.

And now I must briefly refer to the opposite condition—that of unduly low pressure, which is, indeed, more urgently dangerous than one which is too high.

[3] Jl. Amer. Med. Assoc., 1911, vol. lvii., p. 1179.

Adrenalin and Addison's Disease.

There is no chronic disease in which the blood pressure is persistently so low as Addison's disease. I have repeatedly observed a pressure as low as 80 mm., and even 65, though that was shortly before death. I have heard of a case with a pressure of 40 mm., though I should have thought this was inconsistent with the maintenance of life. Now that we appreciate the coöperation of the adrenals with the sympathetic, the symptoms of the disease become more easy to explain and Wilks's view of the "unity of Addison's disease" admits of restatement.

It is due to the absence of adrenalin from the circulation, and this may be brought about in several ways. We can reconcile the two views originally held as to its pathology—one ascribing it to fibro-caseous change in the suprarenals, the other to changes in the adjacent sympathetic. If the sympathetic cannot act in the absence of adrenalin two of the cardinal symptoms of Addison's disease are explained. As the sympathetic supplies accelerator fibres to the heart and constrictor fibres to the blood-vessels their paralysis must result in profound cardio-vascular atony. The sympathetic also provides the stomach with inhibitory fibres; their loss must lead to motor irritability of the stomach, and therefore to vomiting. This will be intensified because, the closure of the pyloric sphincter being under the control of the sympathetic, regurgitation into the stomach can now easily occur from the duodenum. Rendle Short believes that the pigmentation results from the relaxed condition of the blood-vessels, like the pigmentation after poulticing or exposure to light.

Occasionally the gland is found to have been completely destroyed, and yet the signs of suprarenal inadequacy have not developed. At St. Bartholomew's Hospital during 13 years four examples of caseation of both suprarenals were discovered post mortem which has led to no symptoms during life. Peyton suggests that the similar cells in connexion with the sympathetic chain have assumed the function of the gland.

Wound Shock.

As typical of an acute condition associated with low pressure we may take shock. Professor Bayliss's recent Oliver-Sharpey lectures and Cannon's report to the Medical Research Committees have so clearly and fully expounded the new work on the subject of Wound Shock that I may content myself with the briefest summary. Reduction of CO_2 in the blood owing to increased respirations (acapnia), adrenalin exhaustion, vaso-motor paralysis, and cardiac failure alike have been shown not to be primarily responsible. If neither the vaso-motor centre nor the heart is responsible, why is there a low arterial pressure in shock? Apparently because of the diminished volume of blood in active circulation. But where is the lost blood in cases where there has not been gross hæmorrhage? It is not in the heart or lungs. It cannot be in the arteries, since if it were, with both a capable heart and an efficient vaso-motor centre, an adequate amount of blood in the arteries would be accompanied by a normal height of arterial pressure.

We are left, then, with the alternatives of the veins and capillaries. The former alternative has been widely accepted. "In shock," it is said, "the sufferer bleeds into his own abdominal veins." But surgeons of extensive experience at casualty clearing stations have testified that on opening the stomach they have not found any primary splanchnic congestion. Moreover, if this were the case, it should be possible promptly to remedy the condition by lowering the head, bandaging the limbs, and compressing the abdomen. Such methods, though sometimes helpful, do not give the results that would follow were venous stagnation the cause. The capillaries alone remain. Dale and Laidlaw showed that in the shock-like action of histamine there may be a loss of as much as half the total volume of plasma in five minutes by the passage into the tissues and lymph spaces of all the plasma constituents. Cannon, Fraser, and Hooper have demonstrated in shock a concentration of the blood and a stagnation of the corpuscles in the capillaries in such widely separated parts as the ears, fingers, and toes, and even in deeper parts, so that capillary blood may contain 8 instead of 5 million corpuscles per c.mm. Moreover, it has been calculated that the capillary capacity is sufficient to contain the lost blood in shock and that the chances of its doing so are greater the more concentrated the lost blood becomes.

Such concentration must seriously increase the viscosity of the blood, which is also increased by a fall of temperature. This rise of viscosity has been directly observed by Trevan. Now a prompt and striking reaction to injury is profuse sweating, doubtless due to sympathetic stimulation. The fall of temperature thus produced will be accelerated if the clothing is soaked with rain. The temperature often falls below 95° F., and readings as low as 87° have been obtained. According to Cowell, shivering is rarely seen under these conditions, so that heat loss is not compensated for by heat production.

Capillary stagnation means diminished oxidation, with consequent production of intermediate acid metabolites. The H-ion concentration, therefore, rises in the capillaries and still more in the tissues. And as long ago as 1880 Gaskell showed that acids dilated peripheral vessels. To some extent this is compensated for by the stimulating influence of H-ion concentration on the vaso-motor centre. But although this leads to contraction of the arterioles it would not prevent accumulation of blood in the capillaries. The development of acidosis, moreover, acts unfavourably on cardiac contraction, and increases the viscosity of the blood by actually increasing the size of the already over-abundant corpuscles. When acidosis is once established, then, it would tend to continue the disturbances of the circulation which have been produced by other conditions. I note, however, that Professor Bayliss does not attach much importance to the factor of acidosis.

This view of shock as due to stagnation was originally put forward by Malcolm in 1909, though he regarded the veins as the site of the lost blood. It met with great opposition at the time, partly due, I venture to think, to lack of lucidity in its exposition. Mann expressed the same idea in 1915, declaring that in shock there is a loss of fluid at a point beyond vaso-motor control. As shock has been used to describe so many other conditions, such as shell shock, Cannon has suggested the revival of the Hippocratic term "exæmia." For such is the condition of the shocked man who has not bled; he is "drained of blood" into his capillaries, and the consequent fall of blood pressure has disorganised the motive forces of his circulation.

I think this is a fair summary of the conclusions from recent work. It is interesting as suggesting that shock occurs not through paralysis of, but in spite of, the action of the vaso-motor system. Clifford Allbutt, writing of heart failure in high blood pressure, protested against "the accusation of these striving hearts of complicity in the arterial disease. They are stout and faithful to the end, even in defeat." And so, now, we may similarly exonerate the vaso-motor system in the low pressure of shock.

Hypotension in Toxæmia.

It may be asked how such a theory can account for the low pressure of profound toxæmia. When a man collapses with so-called "heart failure" in pneumonia, though his pressure is low, his temperature remains high. It is true that he sweats profusely, which may mislead the inexperienced in confusing this deadly condition with a crisis. But though cooling of the surface—lipothermia—may thus develop later circulatory paralysis precedes it. Recent observations by Dale and Richards explain this by showing that capillary dilatation may occur from purely toxic action. I am much indebted to Dr. Dale for kindly putting at my disposal their, as yet, unpublished paper on this subject. They set out to investigate why histamine, which is a general stimulant of plain muscle, and which always causes vaso-constriction in artificial perfusion, should on injection into the living circulation induce severe shock with vaso-dilatation and a consequent great fall of blood pressure. In the first place, they found that this was especially pronounced after nerve section, even when time was allowed for complete degeneration to occur. There was a very close parallelism between this dilator effect of histamine and that of a minimal dose of adrenalin, which, as we have seen, produces vaso-constriction in ordinary doses.

In the next place, they were able to imitate this dilator effect in a perfused surviving organ if adrenalin and red corpuscles were added to the circulating fluid. They concluded that histamine relaxes the tone of vessels only when adequate oxygen supply is assured. Now arterial plain muscles can retain their responsiveness even after being kept for days in Ringer's solution. Again, the capillaries with their intimate relation to the oxygen-using tissues are indicated as the seat of action. Finally, they cut off the branches of the superior mesenteric artery close to the intestinal wall so as not to include any capillaries, and perfused them with histamine, adrenalin, and red corpuscles, and found that this mixture always caused vaso-constriction whatever the strength of the dose. Yet if they perfused it through the vessels of a loop of the bowel (which would necessarily include the capillaries) vaso-dilatation was produced. This seems direct evidence that the dilator action of histamine is a capillary effect. It confirms from another standpoint the exæmia theory of wound shock, and appears to necessitate a revision of the current theory, according to which the effective peripheral resistance is in the arterioles, that in the capillaries being negligible.

The effect of all this work is to dethrone the vaso-motor system, and therefore the sympathetic from the position of autocratic control of the circulation hitherto assigned to it in physiology and pathology. And in saying this I hope I make some amends to those of you who may think I have been inclined to exaggerate the rôle of the sympathetic nervous system in disease.

A Quotation from Pepys's Diary.

It therefore lies outside my topic to discuss the treatment of shock by intravenous injections whether of solutions of gum arabic or of blood. For it is clear that such methods act at a point beyond the sphere of influence of the sympathetic nervous system. Nor is it necessary, since they have been so recently discussed here by one who has had first-hand experience of them. But I cannot refrain from a quotation from Pepys's diary which brings the founder of these lectures into close relation with present-day problems. Under the date of Nov. 14th, 1666, he says:—

"Dr. Croone told me that at the meeting at Gresham College to-night, which, it seems, they now have every Wednesday again, there was a pretty experiment of the blood of one dogg let out, till he died, into the body of another on one side, while all his own run out on the other side. The first died upon the place, and the other very well and likely to do well. This did give occasion to many pretty wishes, as for the blood of a Quaker to be let into an Archbishop and such like: but, as Dr. Croone says, may, if it takes, be of mighty use to a man's health for the amending of bad blood by borrowing from a better body."

THE INFLUENCE OF EMOTION ON STRUCTURE.

My time, though not my task, is nearly finished. I hope, however, that I may have been able to bring before you some lines of thought which make clearer the influence of the mind on the body, even though stated in terms of current physiology and without reference to those psychological factors with which, indeed, I am not competent to deal.

The evil effects of depressing emotions, of anxiety, fear, pain, and anger, receive an explanation when we see that through the sympathetic nervous system they can lead even to structural change. Designed as an intensive preparation for action or defence, the sympathetic response may be so dissociated, perverted, or prolonged as to produce, through the thyroid gland, Graves's disease with its dangers to life; through the pituitary body, diabetes insipidus with its attendant discomforts; through the pancreas and other endocrine glands, of excessive mobilisation of the blood sugar, which is the first stage of the metabolic disorder that culminates in diabetes; it may disorganise digestion by exciting spasm and atony in stomach and bowels, and inhibiting the secretion of digestive juices; it may keep blood pressure at a level which is inappropriate for the task of the heart and the arteries. These effects are not necessarily distinct; thus intestinal stasis from sympathetic inhibition causes poisons of putrefactive origin to be absorbed, which in their turn lead to vaso-constriction and hence an unduly raised blood pressure. Further work will, doubtless, add to the list; for example, the part played by the sympathetic adrenal response in the "irritable heart" of soldiers. The effect may continue long after the cause has ceased to operate, for, as Herbert Spencer urged years ago, nervous impulses tend to run along accustomed channels. The effect of training in promoting skill is to beat down, as it were, a broad path through the nervous network, a path of lowered resistance. And a profound or prolonged emotion may have a similar effect.

But, Mr. President, just as Clive on a certain historic occasion was amazed at his own moderation, so I, in choosing so ambitious a subject for your consideration, am amazed at my own temerity.

THE INFECTING AGENT IN INFLUENZA:

AN EXPERIMENTAL RESEARCH.

BY PROF. T. YAMANOUCHI, DR. K. SAKAKAMI, AND DR. S. IWASHIMA.

DURING the past winter influenza caused the loss of many lives in Japan. According to official statistics, up to the end of January, 1919, there were nearly 30,000,000 cases, of which 170,000 proved fatal. Inasmuch as 52 of our friends, doctors and nurses, offered themselves as subjects for experiment, we have been able to solve some important questions relating to this infectious disease. The experiments and results now recorded were made between Dec. 1st, 1918, and the end of March, 1919.

Experiments.

1. An emulsion of the sputa from 43 influenza patients was made in Ringer's solution. This emulsion was injected into the nose and throat of 12 healthy persons.

2. A filtrate (by Berkefeld filter) of the same emulsion was injected into the nose and throat of 12 other healthy persons.

The results of these experiments are very significant; among the subjects treated were six persons who had already had influenza, and all six showed no symptoms of illness. But all of the other 18 subjects, both those who had received the emulsion and those who had received only the filtrate, were attacked by the disease, after an incubation of two or three days. Their fever was sometimes slight (37·5° C.), sometimes very severe (39° C. or more). The subsequent symptoms were headache, sore-throat, lumbago, cough, and the like.

3. A filtrate of blood of influenza patients was injected into the nose and throat of 6 more healthy persons. The results were precisely the same as in the previous experiments.

4. We inoculated subcutaneously 4 healthy persons with the filtrate of the sputa emulsion and 4 others with a filtrate of the blood of influenza patients. They all, with the exception of one who had previously had influenza, developed the disease after two or three days' incubation.

5. A pure culture of Pfeiffer's bacillus and a mixed preparation of the pure Pfeiffer, along with pneumococci, streptococci, staphylococci, diplococci, and many other like microbes common in the sputa of influenza patients, were injected into the throat and nose of 14 healthy people who had not had influenza. There were no symptoms of illness following these injections.

Summary.

1. The germ of influenza cannot be removed by filtering (filterable virus).

2. The germs can infect through the mucous membrane and also by inoculation.

3. The germs can be found in the sputum and the blood of influenza patients.

4. The known bacilli, such as Pfeiffer's bacillus, pneumococci, and some diplococci are not the cause of influenza.

5. We observed experimentally that all people who have previously had influenza or received the sputa emulsion or its filtrate are immune to the disease.

TREATMENT OF BONE SINUSES BY SOLID METAL DRAINS.

BY CHARTERS J. SYMONDS, C.B., M.S., F.R.C.S.,

COLONEL, A.M.S.; CONSULTING SURGEON, H.M. FORCES (SOUTHERN COMMAND); CONSULTING SURGEON, GUY'S HOSPITAL.

AMONGST the methods in vogue for dealing with sinuses in bones one which has not been mentioned is the use of metal drains. For over 25 years I have employed both hollow and solid metal drains, and of late have used them in these troublesome sequelæ of fractures and gunshot injuries. The great value of the method deserves to be widely known.

The Benefits of Solid Drains.

In a paper read before the Medical Society of London (Vol. XXXIV.) I described the satisfactory drainage obtained by solid drains, and full particulars were given. The metal prevents closure of the orifice, which neither a rubber tube nor gauze packing will do. It also rapidly reduces the septic changes, and by preventing retention of pus, with consequent decomposition and infective osteitis permits the formation of new material and closure of the cavity. Rubber and gauze both cause irritation, and the latter always some bleeding, which increases septic changes.

The rod is smooth, has a rounded end, and can be removed and inserted without any injury. When substituted for gauze the beneficial effects are at once evident in the disappearance of the surrounding dermatitis and marginal granulations (both due to infection) and the decrease in the discharge. Pain, where existing, rapidly subsides and very soon a retraction of the orifice is seen. The patient can go about with a tube *in situ*; indeed, one of my early cases wore a tube in the lower end of the tibia and drove a motor bus in London. Aluminium answers well and rods can be formed out of splinting material. Of late we have used glass rod, bent to any desired angle.

An Illustrative Case.

Such rods have been used frequently to drain cavities, the result of gunshot injuries, in the tibia, femur, os calcis, and tarsus generally, and also in the carpus. Most striking is the diminution of the discharge, so that the foot and hand can be put up in plaster-of-Paris at once.

To illustrate by one case, an officer came from the first battle of Ypres with a large ragged wound through the carpus, with much swelling of the hand. For three weeks he was treated with baths and a splint. Then, for the first time, the wound was gently curetted so as to remove loose fragments only. A rod of aluminium was passed through and the hand and arm put up in plaster-of-Paris. At once pain disappeared, the dressings were reduced in frequency, and the general condition improved. The rod was left untouched for a month and then reduced in size. The combination secured a rapid recovery.

Other illustrative cases could be given. Enough to say that I am convinced that this is the only method of securing uninterrupted recovery in the majority of bone sinuses where the cavity cannot be "dished out."

Royal Victoria Hospital, Netley.

FISTULA OF THE PAROTID

IN WAR WOUNDS OF THE FACE AND JAWS.

BY PERCIVAL P. COLE, M.B., CH.B., F.R.C.S. ENG.,

HONORARY SURGEON, KING GEORGE HOSPITAL; ASSISTANT SURGEON, CANCER HOSPITAL; LATE HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS, ETC.

With a Note on RADIATION TREATMENT,

By ROBERT KNOX, M.D. EDIN.,

RADIOLOGIST, KING'S COLLEGE HOSPITAL, CANCER HOSPITAL, ETC.

FISTULA of the parotid gland or its duct is a relatively rare complication of facial wounds. Throughout a period of nearly four years, during which time wounds of every grade of severity have come under my care, only some 16 cases have been noted. These fistulæ may be conveniently classified thus:—

Fistulæ of the duct ... ... { Incomplete. / Complete.

" " gland.

The differentiation of incomplete fistula of the duct from fistula of the gland is difficult, and the diagnosis is sometimes a mere probability based on the position of the fistula. Operative verification has not been available, for both have a tendency to heal. Should healing be delayed, the application of radium or X rays is indicated. Gland fistulæ and incomplete fistulæ of the duct have never failed to respond to radiations.

Complete fistula of the duct is incurable except by operative methods. These methods may be grouped into three classes:—1. Seton operations. 2. Atrophy operations. 3. Reparative operations.

Seton operations are mentioned only to be condemned. They usually fail and render more difficult any subsequent reparative procedure. Atrophy operations aim at inhibiting secretion by cutting off the secretory nerve impulses to the gland. These secretory fibres run in the auriculo-temporal nerve, and are destroyed either by resection or avulsion.

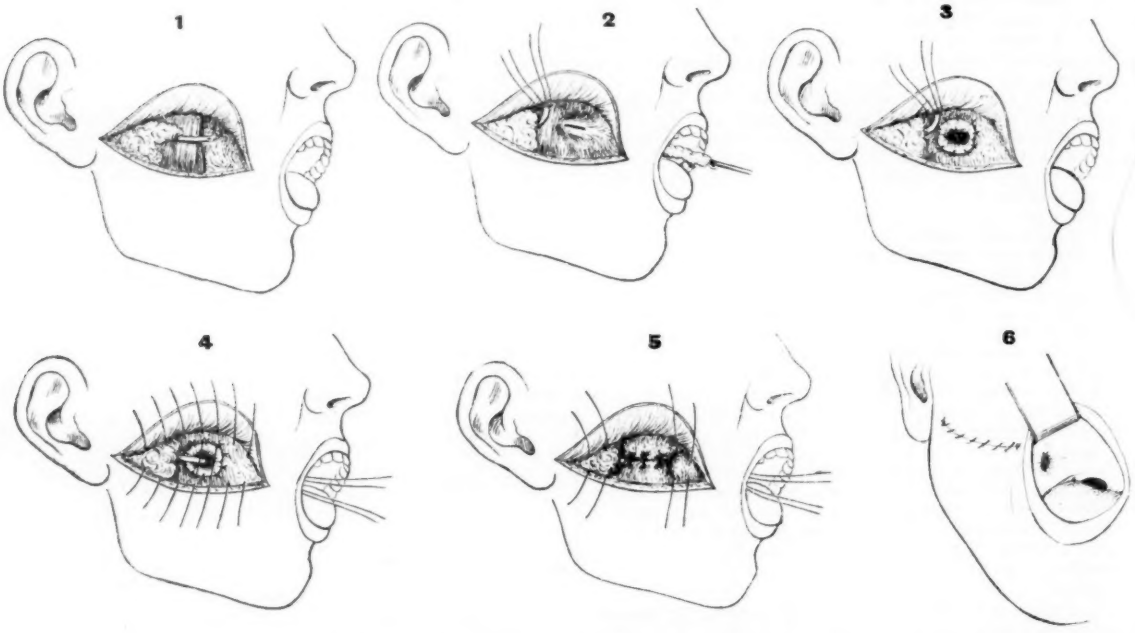
This procedure is precisely analogous to that of the plumber who would remedy a leak in a pipe by cutting off the water-supply to the house. The method has been advocated by some American and French surgeons on the grounds that the operation is easy, that absence of secretion causes no discomfort, and that reparative operations leave an ugly scar. Unless other things are equal, the plea of facility can lay no claim to serious consideration, for at the present time these cases should only be entrusted to surgeons who can confidently carry out any procedure that will give the best result.

Other things in this instance are not equal, for in the two cases that I have encountered dryness of the mouth on the side affected was a cause for complaint, and in both cases an opportunity was afforded at the operation of excising scar tissue which had formed as a result of the original injury.

In both cases several previous attempts had been made to re-establish communication with the mouth by seton being established through a small stab incision. Each stay suture through the duct was then made to take a good hold of mucous membrane inside the mouth, so that when tied the duct was secured in place (Fig. 6). In both cases slight suppuration with a discharge of saliva occurred about the tenth day. Communication with the mouth had, however, been well and visibly established and firm healing occurred in a few days. Both cases were kept under observation for three weeks and were then discharged as cured. No branches of the facial nerve were identified and no facial paralysis occurred.

Technique of Radium Exposures for Parotid Fistula.

The treatment in all the cases dealt with was the same—namely, exposures to a penetrating radiation from 200 mg. of radium contained in platinum tubes of a thickness of about ½ mm.; in addition 3 mm. of lead were employed to cut off all or nearly all of the hard beta radiation and allow of



methods, the only result being to diminish plasticity by the increase of scar tissue, and so add new difficulties to those already existing.

Description of Operation.

It is proposed to describe briefly the steps of the operation undertaken in these two cases. The general principle adopted was that if the duct will not reach the mouth cavity the mouth cavity must be made to reach the duct. A curved incision was made with convexity down and a small flap reflected upwards (Fig. 1). This displayed the duct, the distal end of which was ill-defined and buried in scar tissue. A small lateral hole in the duct marked the limit of patency. The duct was then freed, its terminal portion resected, and two very fine catgut traction sutures were passed through its walls. The mucous membrane covered by buccinator was then made prominent immediately in front of the masseter by means of a small swab pressed against it from inside the mouth, and a small longitudinal incision was made through it into the mouth (Fig. 2). The masseter was nicked at its anterior border and the margins of mucous membrane stitched to the deeper margins of the wound, as shown in Fig. 3.

Through the aperture thus created the stay sutures were passed and the duct was gently pulled into the funnel-shaped extension of the oral cavity. The duct was buried in the extension and the extension cut off from communication with the exterior by catgut sutures passed as illustrated in Figs. 4 and 5. The skin wound was then sewn up, drainage the gamma radiation being used. The radium tubes were enclosed in rubber tubing and in addition several layers of lint were used on the skin to cut off any secondary radiations from the metal filters. An exposure of 3 to 4 hours was given to each skin area. In one case each area received 6 hours' exposure. The variation in the time factor was estimated on the condition of the tissue in each case, those with considerable induration of tissue receiving longer exposures than the others.

No marked reaction was obtained in any of the cases treated. In a number of patients X rays were combined with the radium treatment, small doses being given at short intervals; the X rays were filtered through 2 mm. of aluminium.

BRISTOL ROYAL INFIRMARY.—The annual meeting of the subscribers of this institution was held recently, under the presidency of Mr. H. H. Wills. The chairman stated that the debt on the infirmary was now £22,000, and he added that he would contribute £5000 for the purpose of wiping off the debt provided that an additional £17,000 be subscribed by the end of December.

DEATH OF Mr. W. R. T. HAWKINS.—Walter Robert Thomas Hawkins, M.R.C.S., L.S.A., died at his residence at Bristol on May 27th in his sixty-third year. The deceased was a son of the late Dr. T. Hawkins, of Clifton, and had practised for many years at Bristol, where he was highly respected. He was extremely fond of horses, and bred some very valuable specimens. He leaves a widow and three children.

BLOOD TRANSFUSION BY THE CITRATE METHOD.

A REPORT ON 100 CASES OF TRANSFUSION AT A BASE HOSPITAL.

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AND
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THE citrate method of blood transfusion has many technical advantages over any of the other methods, and if, as is the general opinion of men who have had considerable experience of the different methods, there is no difference in the results when citrated blood is administered, then it is probable that it will completely displace the others. The *direct method* from the artery of the donor to the vein of the recipient has very many drawbacks. In the first place, its performance is difficult, as it necessitates cutting down on both the vessels and the insertion of cannulæ into each of them. Secondly, it inflicts more damage on the donor than is justifiable, as it necessitates the tying of the radial artery. Lastly, and most important, it is impossible to know how much blood is transferred from the donor to the recipient. The *syringe method* is troublesome, in that it requires for its satisfactory performance the coöperation of two people who are used to doing the operation together and whose methods coördinate. The *Kimpton tube method* has been found to be very satisfactory, but it also has the disadvantage that the veins of the donor and recipient have to be cut down on and cannulæ inserted. It is true that for all intravenous work it has been the custom of the military surgeon to cut down on the vein and insert a needle or a cannula. This, however, should very rarely be necessary for any intravenous injection, be it saline, gum, blood, or anything else. There is a very serious disadvantage in cutting down on the vein apart from the possible septic infection of the wound. Even presuming that the wound heals perfectly, then the donor or the recipient is left with a scar at the bend of his elbow. In the citrate method of transfusion nearly all the objectionable features of the other methods are done away with. It is never necessary to cut down on the vein of the donor, and it is only very rarely that the vein of the recipient cannot be punctured through the skin. Another very important advantage is that the donor and the recipient need not be together, so that the operation is much less alarming for both. The blood can be removed from the donor in the most convenient place and then carried to the recipient. There is no fear of the blood clotting, as the citrate in the bottle effectually prevents that.

Testing of the Donors.

Moss, who worked out the blood groups in man, showed that there were four groups as regards the isoagglutination and isohæmolysis of the red corpuscles. As has been pointed out by Lee,[1] there is ample evidence that the only thing that matters as regards compatibility of the bloods of the donor and recipient is the question whether the serum of the recipient will agglutinate the blood cells of the donor. Apparently there is never put in enough of the donor's blood to have any effect on the red corpuscles of the recipient in the presence of the recipient's plasma. If, then, it is only one individual patient that requires transfusion it is sufficient to see whether his serum will agglutinate the red corpuscles of the prospective donor. A little blood is taken from the recipient and allowed to clot and separate serum. A drop of blood is taken from the donor into citrate of soda solution (1·5 per cent.). Some of the recipient's serum is then mixed with a little of the suspension of the donor's corpuscles on a slide and allowed to stand for a minute or two. Then the slide should be gently rocked with a rotary motion, and if the bloods are incompatible it will be seen that the red corpuscles of the donor have agglutinated in masses. The change is easily seen with the naked eye, but if there is any doubt an examination should be made under the microscope. In a hospital where many transfusions are likely to be done or where a transfusion may be necessary at a moment's notice it is convenient to have a certain number of blood donors on hand who have already been tested. It is here that Moss's groups come in useful. If one has serum from patients of known groups, then it is easy to place any given blood in its proper group. It will be seen from the accompanying diagram (which is copied from Lee) that by the use of serum from men of Groups II. and III. all the bloods can be grouped. The corpuscles of Group I. are agglutinated by both serums, Group II. are agglutinated by Group III. serum and not by Group II. serum, Group III. corpuscles are agglutinated by Group II. serum and not by Group III., while Group IV. corpuscles are not agglutinated by either of the serums.

Serum of recipient.	Corpuscles of donor.			
	I.	II.	III.	IV.
I.	0	0	0	0
II.	+	0	+	0
III.	+	+	0	0
IV.	+	+	+	0

+ = Agglutination of red corpuscles. 0 = No agglutination.

Thus Group IV. donors can give blood to anybody, Group I. can only give to Group I., Group II. can give to I. and II., while Group III. can give to I. and III. As the proportion of people who belong to the various groups are as follows: Group I., 8 per cent.; II., 40 per cent.; III., 10 per cent.; and IV., 42 per cent.—it will be seen that by far the most useful donors are those belonging to Group IV., who can give blood to anybody, and Group II., who can give blood to nearly 50 per cent. of the cases. It has been our custom to use only Group IV. donors, as this did away with the necessity of testing the recipients.

Technique of the Citrate Method of Transfusion.

Robertson's apparatus[2] was used, this being such that it could be readily improvised from materials available in the laboratory. A wide-mouthed drug bottle (of a capacity of about 1200 c.cm.) was obtained from the dispensary and a large rubber bung in which three holes had been bored. Through these holes were fitted three bent glass tubes A, B, and C. (Fig. 1.) Tube A, which is intended to receive the blood from the donor, is of wider calibre than the other two, and the glass tube passes down almost to the bottom of the bottle. To this tube is fitted about 1 ft. of rubber tubing, having at the end a needle about 1½ in. long and 2 mm. in calibre. Tube B, through which the citrated blood is delivered to the recipient, is connected by a short length of rubber tubing inside the bottle to another straight glass tube which descends to the very bottom of the bottle. To this tube is fitted about 2½ ft. of rubber tubing, at the end of which is a needle 1½ in. long and 1 mm. in calibre. Tube C just projects inside the rubber bung and has attached about 6 in. of rubber tubing, which has let into it a small glass bulb containing glass wool to serve as an air filter. This tube is for attachment of a Higginson syringe. It is necessary that tube A should be short and of wide calibre to give less surface on which the blood might clot before it reaches the citrate in the bottle, and also that the tube B should be long so that the bottle can be placed on a stand by the bedside when the blood is being administered to the recipient. Tubes A and B should have spring clips on them, and for smoothness of working it is very important that these clips should be of such a nature that they can easily be manipulated with one hand.

An amount of 160 c.cm. of an isotonic solution of citrate of soda (3·8 per cent.) is placed in the bottle. This amount of citrate will be enough for 1000 c.cm. of blood. The citrate solution should be made up with freshly distilled water or with water which has been sterilised immediately after distillation, and kept free from contamination. The needles at the ends of tubes A and B should be protected by small test-tubes with cotton-wool plugs, as shown in the illustration. The bung should be placed in the bottle and tubes A and B drawn up till they are clear of the citrate solution. This will prevent any possible escape of the citrate during sterilisation. Sterilisation should be carried out in the autoclave just as for culture media, and as soon as the

[1] Brit. Med. Jour., Nov. 24th, 1917.

[2] Robertson: Memorandum on Blood Transfusion, Medical Research Committee, April 4th, 1918.

bottle has been taken out of the steriliser tubes A and B should be pushed down so that the intake-tube is well into the citrate solution and the output-tube is right down to the bottom of the bottle. The needles should also be taken out of the small protecting tubes, dipped in olive oil at a temperature of 120° C., and replaced (this is to prevent their

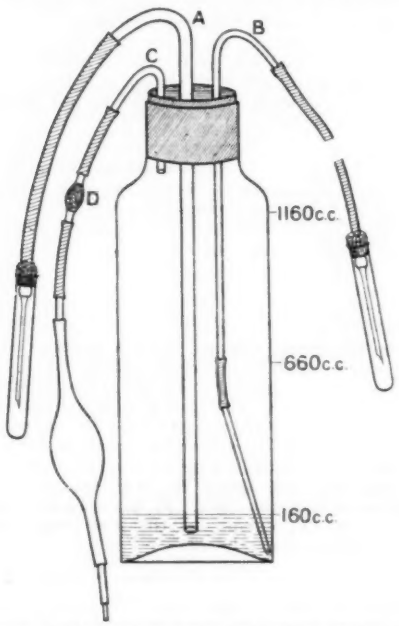

Diagram of Robertson's apparatus for blood transfusion. For description see text.

rusting). The bottle can then be kept until required. When it is desired to take blood from a donor a Higginson syringe should be affixed to tube C after putting a clamp on tube B, and the whole of tube A should be filled with citrate solution.

While tube A is still full of citrate solution it should be clamped. The Higginson syringe is now reversed and again attached to tube C, so that now it will exert suction. The arm of the donor is cleaned up and the skin sterilised (we have in all cases used 3 per cent. picric acid in spirit and have had no trouble) and a tourniquet is applied to the upper arm lightly so as not to obstruct the artery and yet to obstruct the veins. We have found the easiest way to obtain the proper pressure was to apply the tourniquet too tightly and then gradually loosen it until the pulse at the wrist had attained its full volume. The vein of the donor should then be punctured with the needle (of tube A) through the skin. We have never had to cut down on the vein of any of the donors, and if the donor be a man there should never be any necessity to do so.

We have tried in a number of cases inserting the needle from above, so that the flow of the blood from the vein should be in the same direction as the natural flow in the veins, but we could never satisfy ourselves that it made any difference to the rate of flow whether the needle was inserted towards the fingers or towards the shoulder. The anastomosis of veins around the elbow is such that a very rapid flow of blood is obtained when the needle is inserted upwards, and as this method was much easier we used it habitually. If the veins of the donor are small and it is feared that there may be difficulty in inserting the large needle necessary for the rapid withdrawal of blood, it may be of great assistance to draw the skin which covers the selected vein to one side and plunge the needle through it to one side of the vein. The needle is then withdrawn, the skin is allowed to slide back over the vein, and the needle is reinserted through the same skin puncture straight into the vein. In this way the resistance of the skin to the needle is overcome, and there is no danger of the needle going in with a jerk and puncturing the posterior wall of the vein. As soon as the needle is felt to be in the vein the clamp on tube A is loosened and slight suction is made with the Higginson syringe to hasten the flow of blood. Before the needle is inserted and during the whole time the blood is being withdrawn the donor should be made slowly to open and close his fist to drive the blood into the superficial veins and so hasten the flow into the bottle.

The bottle should be shaken at intervals to insure the admixture of the citrate and the blood and *slight* suction should be kept up with the Higginson syringe during the whole time that the blood is flowing. When sufficient blood has been taken the needle is withdrawn and a sterile pad is placed over the puncture in the donor's arm, and he should be instructed to keep up firm pressure with his finger until the arm can be bandaged up. The whole of the blood in tube A should be withdrawn into the bottle and then by reversing the Higginson syringe a little of the blood-citrate mixture is blown into this tube. This will avoid any clotting of the film of blood left in the tube, and so save much trouble in cleaning the bottle for further use. Tube A should now be clamped, and the blood is ready to give to the recipient. The clamp is removed from tube B, and with a little pressure from the syringe tube B is completely filled with citrated blood, after which tube B is again clamped. The needle is now inserted into the recipient's vein, and it is only very rarely that it should be necessary to cut down on this. If the recipient is under an anæsthetic the best way of rendering the veins prominent is, after fixing the tourniquet on the upper arm at the proper pressure, to vigorously massage the muscles of the forearm with both hands to drive the blood into the superficial veins. After the needle is inserted in the vein the clamp is removed from tube B, and by means of pressure from the syringe the citrated blood is driven into the veins of the recipient. The time occupied in giving 500 c.cm. of blood should not be less than ten minutes, otherwise alarming symptoms may supervene.

Results of Transfusion of Citrated Blood.

During four months we have done 100 blood transfusions by the citrate method; these were all in cases of fractured femurs in which either secondary hæmorrhage had occurred or where the limb had been amputated and much blood had been lost. In many cases there had been a secondary hæmorrhage, and as a result the limb was amputated, thus causing a further loss of blood. In only one of the cases did any alarming symptoms follow the transfusion, and this was in one of our early cases, and was probably due to our giving the blood too fast. There was extreme dyspnœa for about a minute, the patient lost consciousness, and the pulse became very rapid and feeble. This only lasted about a minute, during which the transfusion was suspended, but after another minute it was resumed, and the remainder of the blood was given very slowly and without giving rise to any symptoms. In one or two cases when the patient had received from 100 to 150 c.cm. of blood he complained of a certain amount of "tightness in the chest," but this was always quite transient, and on stopping the flow of blood for about half a minute the condition passed off and the transfusion could be proceeded with without mishap. A quite frequent symptom in patients whose limbs had been amputated was the onset of pain (sometimes considerable) in the stump. They said the stump was "swelling up and bursting." This seemed to be the direct result of the blood infusion, as it ceased when the flow of blood was stopped and recommenced when the flow was started again without the patient's knowledge.

The usual result of the blood transfusion was a very great increase in the volume of the pulse, with some diminution in the pulse-rate. The appearance of the patient became very much better owing to the return of some colour to the cheeks and lips. In most cases this improvement was maintained. There can be no doubt that in a very fair number of the cases which we transfused the effect of the blood was to prevent the death of the patient from the shock following hæmorrhage and operation. All these cases were complicated by the presence of severe sepsis (to which the secondary hæmorrhage was due), so it is quite useless giving any figures of recoveries or deaths. A certain number never recovered from the shock of the operation, but these formed only quite a small proportion of the cases. Most of the deaths in the transfused patients were from sepsis.

The transfusion of blood can be repeated as often as is necessary. One of our patients received six transfusions. To begin with, he was very anæmic as the result of severe

sepsis, and he had six secondary hæmorrhages, after each of which he had a transfusion. This continued during about five weeks After each transfusion he was much better, and his colour changed from extreme pallor to a certain amount of flushing of the cheeks and lips. Unfortunately the septic process continued, and ultimately he had another hæmorrhage from the gluteal artery and died. There is not the slightest doubt, however, that in this case death would have occurred some weeks before had blood transfusion not been performed, and but for the continuance of sepsis there is no reason why he should not have recovered.

There is a question as to whether in these cases gum solution as prepared by Bayliss would not have acted as a substitute for the blood. Before we gave any blood transfusions we had used in a considerable number of similar cases gum solution prepared in a central laboratory. The immediate effects of the gum in improving the pulse were very obvious, but a very large number of the patients relapsed an hour or two after the operation and were as bad as ever. In one or two cases the administration of the gum solution was followed by rigors, but this was in all probability due to some fault in the preparation of the solution, as well-made gum solution should not have this effect. At the base there was not the urgency to use gum that there was at the C.C.S., as the number of patients requiring transfusion was very much less and the number of donors was increased. We have never found any lack of men volunteering to act as donors.

As regards the choice of donors, we have found that young men of about 20 are much less affected by the withdrawal of 700 or 800 c.cm. of blood than are men over 35. Occasionally a donor would faint after the withdrawal of the blood, but apart from this we have seen no ill-effects follow. Where possible we used men who had recovered from small septic wounds, as it was considered possible that as the result of their infection they had developed some antibodies to the streptococcus which was the chief causal agent in the sepsis at the base.

Transfusion with Immune Blood.

This brings us to the possibility of giving transfusions of immune blood. Sir Almroth Wright has recently shown[1] that it is possible to immunise blood *in vitro*, and he has suggested that it should be possible to immunise the blood of the donor before it is administered to the recipient. The blood is taken from the donor, and to it is added a small dose of vaccine. It is then incubated for two hours to allow of the development of antibacterial substances, after which it is injected into the septic recipient. Theoretically, it ought to give better results than a simple blood transfusion. We have tried this method in three cases, but the results were not very strikingly different from those after transfusion with ordinary blood. In all these cases of septic compound fractures, however, there are so many complicating factors that it is difficult to see directly the result of any one procedure. It can easily be shown, however, that the blood after incubation with a small quantity of vaccine does possess a certain degree of bactericidal power.

Effect of Citrated Blood on the Coagulation Time.

A possible objection to the use of citrated blood for transfusion in these cases is that the excess of citrate which is used might have some effect in reducing the coagulation time of the recipient's blood and so predispose to hæmorrhage. We have tested the coagulation time before, immediately after, and again after 24 hours after transfusion with citrated blood, and have found that the coagulation time was not altered.

Summary.

1. The citrate method of blood transfusion has the following advantages over the other methods: (*a*) It should never be necessary to cut down on the vein of the donor. (*b*) Only seldom should it be necessary to cut down on the vein of the recipient. (*c*) The donor need not be brought into the presence of the recipient, but the blood can be taken in the most convenient place. (*d*) The apparatus required can readily be improvised.

2. In the opinion of workers who have had extensive experience of several methods the results obtained by the citrate method are as good as those of any of the more complicated and difficult methods.

3. The transfusion of citrated blood on many occasions saved or prolonged life.

4. Blood transfusion can be repeated frequently if necessary.

5. The administration of citrated blood has no effect in diminishing the coagulability of the recipient's blood.

[1] THE LANCET, 1919, i., 489.

TRANSFUSION OF BLOOD:

A CASE OF PEPTIC ULCER WITH GRAVE ANÆMIA TREATED BY INTRAVENOUS INJECTION OF WHOLE BLOOD.

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TRANSFUSION of blood in civilian practice has received less attention than it deserves. The following case is an example of the circumstances under which transfusion is likely to be of benefit in civil life.

Notes of Case.

The patient, a married woman aged 53, was admitted to St. George's Hospital under care of Dr. James Collier on Dec. 2nd, 1917. Her illness had begun two months before with a "bilious attack"—i.e., abdominal pain, giddiness, and severe vomiting. This passed off, but left her with a feeling of fullness in the abdomen, flatulence, and occasional epigastric pain. Fourteen days before admission she again had acute pain with nausea. The pain, continually present, was aggravated immediately on taking food. No hæmatemesis; melæna more than once. She became very pale and weak, and fainted twice in the three days prior to admission. Bowels constipated. She had always suffered from slight indigestion: no attacks similar to the present one.

On admission the patient was fairly nourished but very weak, and profoundly anæmic. Tongue dry. Heart not enlarged; systolic murmur of hæmic origin all over precordia. Lungs normal. Abdomen, slight tenderness and rigidity in epigastric region. Urine, sp. gr. 1014, acid, no albumin, sugar, or blood. Two days after admission: Red cells numbered 1,464,000; hæmoglobin, 26 per cent.; colour index, 0·81; white cells, 8800; polymorphs 70, lymphocytes 27, mononuclears 2, eosinophils 1 per cent. Two "normoblasts" were met with. The fæces, of a tarry consistency, were examined for parasites with negative result.

Course.—The patient was put on "fancy diet" and given 6 oz. of raw scraped meat daily; bismuth, iron, and arsenic administered. Hæmorrhage from the bowel in appreciable quantities appeared to have ceased, but she went steadily down-hill. Blood transfusion was suggested, but difficulty arose in finding a suitable donor. The first would-be donor's cells were both agglutinated and hæmolysed in vitro by the patient's serum; in the second case agglutination of donor's cells only took place; the patient's cells were not affected by the donor's serum. No other donors were available, and as it appeared impossible that the patient could survive more than a day or two it was decided to try transfusion with the second donor's blood. Subsequent investigations showed that our patient belonged to Class IV. of Moss's classification and could only receive blood safely from her own group. We knew in general terms of the danger, but were not then aware of the exact train of symptoms to be expected. For this reason a preliminary injection of 10 c.cm. of blood was given at 11.45 A.M. on Dec. 7th and she was carefully watched. During the procedure her arm and shoulder had been left bare and afterwards she complained of feeling cold. No other adverse symptoms were noted, but the urine was not specially observed. At 5.30 P.M. 200 c.cm. blood from the same donor were injected as described below, the patient not being unduly exposed. A few minutes later she had a rigor, and the temperature, previously slightly irregular, shot up to 103·6° F. For the next 24 hours oxyhæmoglobin (identified by spectroscopic examination) was passed in the urine. In spite of this severe reaction she seemed rather better, and a tendency to mental confusion disappeared. No other adverse symptoms; no jaundice of conjunctivæ present on following days.

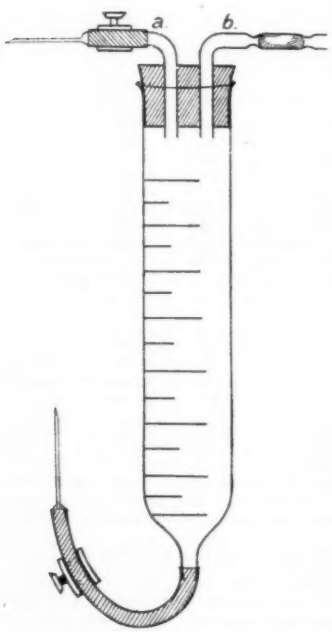
Three days later a suitable donor was found and 85 c.cm. blood were given intravenously. There was no reaction and a wonderful improvement followed. After four days 100 c.cm. from the same donor were given. Again there was no reaction; the improvement was quite remarkable and was

steadily maintained. On Dec. 17th an injection was given from another donor, but owing to an accident with the apparatus only 5 c.cm. were administered.

After this no further transfusions were considered necessary. Until Dec. 22nd the temperature remained irregular, rising on two occasions to 101°, but not coincident with any injection. Vomiting occurred on one occasion. Constipation proved troublesome, but was overcome with liquid paraffin and malt. Occult blood was present in the fæces till the end of January, when it was no longer found. The red cell count on Jan. 5th was 3,048,000; hæmoglobin 40 per cent.; colour index 0·59. Sixteen days later red cells 3,808,000. On Feb. 6th she was sent to Atkinson Morley's Convalescent Hospital at Wimbledon, whence she was discharged on March 20th to all appearances in perfect health. The red cells were then 4,500,000, hæmoglobin 70 per cent., colour index 0·69.

Apparatus for Transfusion.

The apparatus used by us is simple and is easily made in an ordinary laboratory. The main part consists of a graduated glass cylinder of about 300 c.cm. capacity with an outlet at the bottom. Through a rubber cork pass two glass tubes, *a* and *b*. To *a* is attached a short piece of rubber tubing on to which a large-bore needle is fixed for collecting blood from the donor's vein; *b* is provided with a sterilised plug of wool to filter the air entering the cylinder. This tube is connected with an aspirator while the donor's blood is flowing into the cylinder and with a spray bellows when the blood is flowing into the recipient's vein.



It is desirable to have some form of clamp to prevent the cork from coming out when the pressure is raised inside the cylinder. The outlet at the bottom of the cylinder is connected to the needle destined for the patient's vein by rubber tubing. Clips are placed on the various tubes so as to close them when required. The apparatus is sterilised by boiling, and before use 10 c.cm. of sterile 0·9 per cent. sodium citrate are introduced into the cylinder to prevent clotting; we have never seen harm result from the injection of moderate quantities of this drug. When all is ready the upper needle is inserted into the donor's vein and the required quantity of blood collected. This needle is then withdrawn, the tube *a* clamped, and the lower needle inserted into the patient's vein. The lower tube is then unclamped and the blood allowed to flow into the patient's vein, the flow being increased by raising the pressure into the cylinder. With a little practice transfusion can be carried out in about 15 minutes.

Tests for Compatibility.

Landsteiner, in 1901, divided individuals into three blood groups, to which Moss,[7] in 1910, added a fourth. Lee[8] summarises these groups in the following table:—

Group.		Serum.			
		1	2	3	4
Cells	1 ...	−	+	+	+
	2 ...	0	−	+	+
	3 ...	0	+	−	+
	4 ...	0	0	0	−

+ = Agglutination or hæmolysis. 0 = No agglutination.

Red cells are unaffected by serum of blood belonging to the same group, but may be affected by sera of other groups. Agglutination and hæmolysis are considered together, because although agglutination of the donor's cells has not been proved to give rise to any bad result, it is generally accompanied by hæmolysis in vivo, even when no laking can be observed in vitro. As in our case, hæmolysis is apt to be far more intense in the body than in the test-tube.

Hæmolysis after transfusion is highly dangerous and accounts for practically all the fatalities. The blood must therefore be tested. Now Bond[1] has shown that the agglutinative reaction is a quantitative one and that it can be altogether prevented if the agglutinating serum is mixed with another non-agglutinative serum. This is not due to dilution but to a combination between the proteins of the second serum and the agglutinins, which are thus prevented from clumping the red cells. Transfusion is therefore quite safe when the donor's serum agglutinates or hæmolyses the patient's cells—the agglutinins and hæmolysins are taken up by the patient's serum and exert no action on the corpuscles.

It is otherwise when the patient agglutinates the donor's cells. The amount of serum in the transfused blood is not enough to combine with the patient's agglutinins and destruction of the transfused cells with corresponding ill-effects takes place. Agglutinins and hæmolysins vary very much in power, both in different individuals and in the same individuals at different times. Hence the post-transfusion symptoms vary in intensity from rigors and hæmaturia to jaundice, collapse, and death. We did not know of Bond's work at the time or we should not have attempted the first transfusion.

Indications for Transfusion.

Transfusion may be of benefit in several ways:—

1. *By replacing the volume of blood* lost in recent severe hæmorrhage. Much has been written on this subject by those working at the front. The results, to judge by numerous reports, are excellent.

2. *By controlling hæmorrhage.* We do not suggest that bleeding from large vessels can be checked. We were unable to obtain any such effect in a fatal case of profuse hæmorrhage from a gastric ulcer. But in capillary oozing and in hæmorrhagic diseases the results are little short of marvellous. Ottenburg and Libman[10] show that blood transfusion is a specific cure for hæmophilia. Our experience suggests that better and more permanent results might be obtained by a series of quite small transfusions. Melæna neonatorum[8, 14] yields with surprising readiness to subcutaneous injections of blood or even serum, suggesting that the hæmostatic factor resides principally in the serum. In hæmophilia whole blood acts more powerfully than serum. Many authors recommend transfusion as a preliminary before operations where serious hæmorrhage is anticipated. In our case it is quite possible that the transfusions had some effect in preventing further hæmorrhage from the ulcer.

3. *By preventing excessive hæmolysis.* Stansfeld[17] pointed out that in cases of pernicious anæmia where transfusion brings about a remission the jaundice and toxæmia diminish and there is a decrease of urobilin in the urine. At the same time the myeloid reaction becomes less marked, suggesting that hyperplasia of the marrow is not wholly responsible for the improvement. This effect can, however, be accounted for by a decreased destruction of the patient's red cells.

4. *By stimulating the hæmopoietic system.*—This is perhaps the most important therapeutic effect of transfusion. The mode of action is obscure, but there is ample evidence that the blood-forming organs are powerfully stimulated by the products of blood disintegration. The argument that the mere gain in vitality from the infusion of more oxygen-carrying material into the circulation has revived the bone marrow falls to the ground. The second transfusion is as a rule of much greater benefit than the first. One should never give up transfusion as useless until two injections at a few days' interval have been tried. A single large transfusion does not have at all the same effect. The facts are best explained by the theory that some substance in the blood, probably derived from disintegrated red cells, has a specific effect upon bone marrow. Possibly patients with grave anæmia and exhaustion of the bone marrow will be found to do better with very small doses (5–10 c.cm.) of incompatible blood. 5 c.cm. of hæmolysed blood is not enough to be harmful, but may in repeated doses prove an

adequate stimulus for the bone marrow. We propose to test this assumption should a suitable opportunity arise.

5. Finally, transfusion has been performed where it was thought that the donor's blood contained antibodies for some specific infection. The recorded cases are few and further research is desirable.

Dosage.

We would suggest that except for severe and recent hæmorrhage large transfusions are unnecessary and possibly even harmful. Not that over-burdening of the heart is likely to ensue, but although preliminary tests eliminate gross incompatibilities they do not exclude lesser differences in individual bloods. The fact that some bloods cause phagocytosis of red cells while others belonging to the same group do not is an instance in point. The patient may have difficulty in coping with the lesser peculiarities of foreign blood; for these lesser incompatibilities do cause inconvenience as is evident from the number of slight reactions which follow the transfusion of blood from apparently suitable donors.[7] On the other hand, if there is some factor in the blood which the patient requires, as in hæmophilia, it is likely to be more easily assimilated if given in repeated small doses. Therefore, since a small dose has, at any rate, as beneficial effects as a large one and is much easier to administer and obtain, we advocate its use. The important point is that it should be frequently repeated. Of course, the dosage must vary in individual cases. Probably 100 c.cm. once a week will be found enough in many instances.

As regards donors we, in common with other observers, have never found any ill-effect follow the loss of amounts of blood up to 250 c.cm. Indeed, after a single transfusion, the donor could not recognise that any ill-effect whatever had been produced. It is, however, unwise to bleed the same person too often. A loss of 250 c.cm. at weekly intervals will soon produce anæmia with accompanying dizziness and debility even in very healthy subjects.

In conclusion, we wish to express our warmest thanks to Dr. Collier for permission to publish this case.

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A PRIVATE EMERGENCY HOSPITAL.—A somewhat original scheme has been set working at the new Pennsylvania Hotel, New York. An emergency hospital, completely equipped and up to date in every particular, has been established in this hotel for the behoof of the 2000 employees, all of whom will receive free medical and surgical treatment. A medical man will be in charge and three trained nurses will assist him, while a fourth nurse will visit the homes of employees who are ill.

THE LATE MR. CHARLES HENRY HIBBERT.—Mr. C. H. Hibbert, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., who met his death in consequence of a fall while climbing the boundary fence after a ball in the cricket field on May 26th, was a well-known medical practitioner in the Marple district of Cheshire and a noted cricketer. Belonging to an old family of physicians and surgeons he qualified in 1893, having received his medical education at Owens College. He was medical officer of health for the Compstall urban district council and parochial medical officer for one of the districts of the Glossop union.

A NEW METHOD OF
INCISION OF THE TYMPANIC MEMBRANE
FOR ACUTE OTITIS.

BY R. LAKE, F.R.C.S. ENG.,
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THE original method adopted for the evacuation of fluid within the tympanum was little more than acupuncture, the small spear-headed myringotome employed being merely thrust through the membrane in the hope of sufficient fluid being evacuated for the remainder either to be re-absorbed or not, according to circumstances. This method was so obviously unsurgical and unsatisfactory in its effects that incision of the drum took the place of puncture, at any rate amongst the then younger aurists (1). Incisions varied in length, direction, and situation. All had their advocates, though I think at the present time most aurists make their incision directly from above downwards and fairly freely.

For a long time this vertical incision (2) made boldly seemed to me to be the best, even in cases where there was thick mucus in the tympanic cavity and where the incision shown in the figure (3) was used. However, I found that,

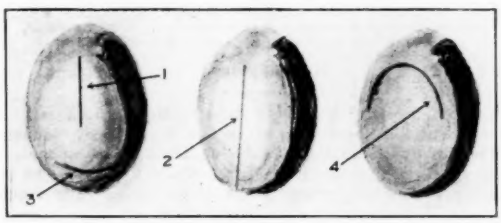

Diagram of bulging right membrane.

where one was early on the spot and saw the patient when the tympanum was first filling with fluid and mucopus serum or mucus was already causing the drum to bulge, where one had good anæsthesia and where one made this free incision that far too many cases went on to mastoiditis and subsequent operation.

It is, of course, obvious that in fulminating cases incision of the tympanic membrane, however efficient, will fail in the majority of instances, because the infection is already too widely diffused in the mastoid to be easily checked, but the number of fulminating cases did not seem to me to justify the proportion of failures.

This high average of mastoid operations after preliminary incision of the tympanic membrane, which was performed before definite symptoms of mastoid involvement occurred, seemed to indicate that the incision itself was not satisfactory.

Naturally the drum is not very elastic; an incision of a normal drum causes no gaping wound in the membrane, as those who have done intratympanic surgery, such as division of adhesions or tenotomies, &c., well know. So also are most aware of the extreme rapidity with which the edges of incisions in the drum adhere and heal; so that when the fluid which was present in the tympanic cavity was evacuated the incision was usually able to heal before a re-accumulation occurred. For the greater the previous distension the quicker the healing would occur, as the edges would lie longer in apposition.

It followed then that if the vertical incision was inefficient that also the curved incision (3) used for the evacuation of thick mucus in the floor of the cavity would be inefficient as one could only rely on the shape of the incision to keep a free vent so long as the flow of exudation from the middle ear and its adnexa was not too profuse to allow of healing.

The New Method of Incision.

The incision which I have adopted for the last few years seems to me to give better results than any I have previously employed, always provided that one employs a general anæsthetic and that the case is seen before there is any mastoid involvement either of the antrum or mastoid cells. And that is a crescentic or curved incision following the contour of the edge and of about the same extent of the posterior

superior quadrant—i.e., a curved incision with the convexity upwards (4). This in theory, at all events, should allow of a longer drainage, for the flap should tend to fall downwards. And, as a matter of fact, it does, though nothing like as much as one would expect, and this results from the absence of any yellow elastic fibres in the tympanic membrane.

After-treatment.

As immediate after-treatment is of some considerable importance I would recommend the trial of a combination of equal parts of 10 vols. of hydrogen peroxide and liquor sodæ chlorinata, mixed immediately before use and instilled or syringed into the external meatus *whilst effervescing*. By this means one not alone obtains the benefit of the mechanical effect of the evolution of oxygen from the septic material, but euchlorine is at the same time forced fairly deeply into the middle ear and, may be, beyond.

As for the knife I believe a straight-handled knife to be the only shape that enables one to make a curved incision.

Cavendish-place, W.

SECONDARY SUTURE OF WOUNDS.[1]

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SOME time ago[2] I showed some soldiers on whom I had operated at the Royal City of Dublin Hospital by cleansing the wounds with bipp and suturing them. The success of these cases determined me, on my return to France, to put this method into practice on a large scale. The results completely confirmed my previous experience.

Technique.

The ointment that I have used is made as follows: 2 parts of iodoform, 1 of bismuth, 12 of vaseline, and enough hard paraffin to give the preparation the consistency of butter. This modified bipp has advantages over the original[3] and never produces symptoms of intoxication, though used in very large quantities.

Much has been written on the distinction between delayed primary and secondary suture, but in the cases on which this paper is founded the classification is simple. When the skin edges are not excised the operation is spoken of as delayed primary suture, and when they are excised it is secondary suture. We found that as a rule delayed primary suture could be practised up to about the seventh or eighth day after the infliction of the wound, and that after that date secondary suture was necessary.

The *steps of the operation* are as follows. After cleansing of the wound and surrounding skin with ether and iodine—

1. Granulation tissue, if present, is removed from the surface of the wound with a sharp curette.

2. The skin edges are separated by blunt dissection all round the wound for a considerable distance, varying with size of wound and loss of tissue; in large wounds it was found advisable to make the line of separation between the superficial and deep fasciæ to ensure a good blood-supply to the skin.

3. The skin edge all round is removed with sharp scissors, as a rule as economically as possible.

4. The whole wound thus made is dried thoroughly, any bleeding points being tied with fine catgut, then swabbed with ether or methylated spirit, and packed for a few moments with gauze wrung out of one or other of these liquids.

5. The wound is completely covered with bipp, which is thoroughly rubbed into the tissues and into all pockets or crevices with a piece of gauze, also freely smeared with bipp.

6. The tissues are sutured in layers with catgut so as to obliterate, as far as possible, all dead space; one, two, or three layers of catgut suture may be employed to unite the muscles, a separate layer is always used for the deep fascia. These sutures may be either interrupted or continuous, usually I employed the latter.

7. Finally, the skin is united by thick silk impregnated with bipp. Where there is no tension on the skin a continuous suture of fairly fine silk may be used, but where there is tension interrupted sutures of thick silk should be placed about every half-inch, passing through the skin from ½ to 1 in. from the edges of the wound and including the whole depth of the superficial fascia, and it is well to include also a little of the deep fascia. Superficial sutures of silkworm gut should be placed between the silk sutures, so as to obtain good coaptation of the skin edges. Finally, the wound is dressed with gauze, smeared with bipp, a thick layer of wool, and a tight bandage.

Slight variations of this routine may be advisable. For instance, in small wounds the whole wound may be completely excised by the knife, or this may be done at least to the superficial part of the wound and the separation of the skin edges undertaken afterwards. In old-standing wounds of a month or more it is advisable to excise the whole wound, or if this is not practicable to dissect away as much as possible of the thick layer of fibrous cicatricial tissue which underlies the granulations.

Post-operation Treatment.

Some irregularity of temperature is fairly common after these operations, and if not accompanied by persistent pain does not necessarily mean sepsis (using the word in its clinical and not its pathological sense). If temperature or pain or both continue after the third day the wound should be dressed and possibly one or two superficial sutures removed to give exit to a mixture of broken-down blood and bipp, seldom or never true pus. On no occasion was it necessary to remove all the stitches, even in the few cases which suppurated freely. And only quite exceptionally was the removal of a silk suture necessitated.

If there is no continued rise of temperature or pain the case need not be dressed till the seventh or eighth day, when the superficial sutures are removed. As a rule, however, in the case of large wounds or where there was much tension on the stitches I made a practice of removing the dressing and looking at the wound on the fourth day. The deep silk sutures should be removed from the tenth to the twelfth day.

In cases where there was considerable tension I found it advisable to keep the edges approximated by strapping for a week or ten days after removal of sutures. I found by experience that broad mattress silk sutures, even when protected by rubber tubing, did more harm than good. It is far better when there is great tension to content oneself with partial closure of the wound. Experience alone can help the operator to decide how much tension may be used with safety in order to close the wound. Michel's clips were found useless.

Condition of Wounds on Admission.

The majority of cases that came to our hospital might be roughly divided into (1) those directly from the front from 4 to 14 days after they were wounded, and (2) those from base hospitals, usually at Paris, arriving a month or more after being wounded.

The wounds of those who came from the base hospitals were always thoroughly septic, many being cases of compound fracture suppurating freely. As a rule, it was impossible to suture them, until, by dressing them every second or third day with bipp for two or three weeks, we had reduced the acuteness of the infection. At the end of this time, however, especially if the wound only involved the soft parts, we were frequently able to excise the wound freely and perform an operation of suture with satisfactory results.

On the other hand, cases which came directly from the front, had practically all been operated on there and the wound freely excised. On arrival these wounds were, as a rule, plugged with gauze which had been soaked in ether or Mencière's fluid (a mixture of alcohol and ether with small quantities of iodoform, guaiacol, eucalyptus, and balsam of Peru[4]). The dressing had not been changed for 48 hours or longer and the wound was generally in a stinking condition, with considerable discharge. These cases were dressed immediately on admission, washed with Dakin's solution, the plug removed, and the wound filled with bipp and covered with gauze freely smeared with bipp. This dressing was repeated every second or third day, and from three to eight days after admission the case was, as a rule, considered ready to be

[1] A paper read at the Surgical Section of the Royal Academy of Medicine in Ireland, Jan. 31st, 1919.

[2] Surgical Section of Academy of Medicine, Jan. 11th, 1918.

[3] THE LANCET, 1916, ii., 268.

[4] Brit. Med. Jour., 1919, i., 412; THE LANCET, 1915, i., 269.

sutured. Certain cases on admission in a state of poor nutrition or depressed vitality, or with a tendency to superficial infection of the skin (as shown by multiple boils or acne) were liable to present some infection of the wounds after suture, and we found it advisable to delay operation until their general condition had improved. One case of flapless amputation of the arm when dressed on admission showed symptoms of advanced gas gangrene, but he left hospital with a sound painless stump one month after operation. I am inclined to think that these wounds which arrived with a profuse stinking discharge were infected mainly with saprophytic organisms, and that this explains why they cleaned up so rapidly under our treatment and allowed early and successful suture.

After a little experience we found that two classes of cases were specially liable to go septic after suture: (1) Those which arrived at the hospital with a drainage-tube; (2) those which had been partially stitched at the front, specially when the stitches had in whole or part cut through. We had cases of multiple wounds where some of the wounds, presumably the most favourable, had been sutured at the front unsuccessfully, and where we sutured with complete success the other wounds which the surgeons had not seen fit to attempt at the front.

Results.

There was not a pathologist within 50 miles of us and bacteriological controls were impossible. From a practical point of view, I think this would have been quite unnecessary. Our hospital only contained 110 beds and fresh convoys were continually arriving. As a rule, no case was discharged till ready to go home for a short convalescence. The fact that we passed over 500 men, all more or less serious surgical cases, through the hospital in seven months proves (I think) the practical success of our methods. Undoubtedly if we had been able to choose our cases or to wait longer before operating we could have shown better statistical results.

TABLE I.

—	Superficial.	Deep, affecting—		Re-amputation.	Total.
		Muscles.	Bones.		
Delayed primary suture	10	15	6	0	31
Secondary suture	13	83	27	5	128

Table I. shows that most of the cases were severe. In re-amputations especially is it necessary to operate as early as possible. In our five cases of re-amputation there was a slight amount of suppuration in three, extensive suppuration (which cleared up quickly) in one, and no suppuration in the other, but in all cases we were able to close the stump completely with a sacrifice of not more than 1½ in. of bone, though in every case on admission to hospital the bone was either flush with the end of the stump or actually projecting freely beyond the soft tissues.

TABLE II.

—	Healing by first intention.	Slight suppuration.	Incompletely closed.		Prolonged or abundant suppuration.
			Healing by first intention.	Slight suppuration.	
Delayed primary suture	23 (74·2%)	5 (16·1%)	3 (9·7%)	0	0
Secondary suture	83 (64·8%)	29 22·7%)	7 (5·5%)	1 (0·8%)	8 (6·2%)

In Table II. are given results of the operations classified according to suppuration. Even in cases where suppuration involved the greater part or whole of the wound, or did not clear up quicky, it was never found necessary to remove all the sutures, and the operations greatly shortened the patients' stay in hospital. Many of our cases were in the fighting line within two months of being wounded. When compared with the results obtained before the introduction of these methods these results are remarkable. Among all our cases we had almost no serious complications. Finally is the great advantage of this method of treatment from the patient's point of view.

HEREDITARY MALFORMATION OF THE EXTREMITIES.

BY W. J. RUTHERFURD, M.C., M.D. GLASG.,
AND
BARBARA G. R. CRAWFORD, M.B.E., M.B., CH.B. GLASG.

LAST year one of us published in THE LANCET a brief note on a case of congenital deformity of the hands and feet,[1] evidently due to antenatal injury and not transmitted. The following cases are due to variation of the germ plasm, a condition hereditary to a high degree.

Account of Deformities.

Mrs. A. was seen recently; an apparently well-proportioned woman, aged 25 years. On examination she showed the following conditions: In both hands the thumb has an extra phalanx (Fig. 1); the right hand has

FIG. 1.—Showing the hands and feet of the mother.

also a small nodule on its outer aspect connected with an extensor tendon, and she stated that in infancy a supernumerary digit was removed at this point. Both feet present the curious cloven appearance known sometimes as the "claw foot" or lobster claw deformity ("pied en pince de homard"), there being two large pads or toes, each consisting of two or more fused digits, separate elements of which can be felt in each mass, though some of the phalanges are obviously missing. The feet are of different sizes, and practically the only inconvenience felt arises from this.

The family history is interesting. The patient remembers her mother saying that the grandmother had a similar deformity; the mother is said to be normal, and so is the patient's only sister. Mrs. A. has had two children: a boy, who died in his third year, was deformed just as she is, and

FIG. 2.—Condition in daughter.

her little girl presents an almost identical condition. The feet (Fig. 2) are cloven like her mother's; the thumbs, as well as having a phalanx too many, are wasted, and the left is contracted and drawn in over the palm.

The family tree, as far as traced, is here shown.

Lobster-Claw Deformity.

This condition is rare and interesting; it has been shown to be highly inherited, and an excellent illustration from casts of hand and foot, but without any case-history, may be found in Coats's "Manual of Pathology."[2] Much information is given by Lewis and Embleton,[3] who furnish a bibliography of 61 items, and who, including the cases observed by them, have collected in all over 180 individual cases of the deformity. The condition has been met with in Central Africa as well as in England, Scotland, and on the continent. Stannus[4] mentions and figures a case of split foot in a native child in Nyasaland, and also another case in which the hands only were affected.

Including the small family group of four affected individuals here recorded, we have obtained direct information as to the sex of the affected person in 80 cases; there were 51 male to 29 females, or a male incidence of about 64 per cent.

The distribution of affected and unaffected individuals in families in which this condition occurs is also of interest. No case with both parents similarly affected has been encountered in the literature. In the cases given in Parker and Robinson's[5] paper the proportion of affected and unaffected individuals is exactly equal, as would be expected if the condition were inherited as a mixed dominant, but it will be seen from the records of other reporters that there is a large preponderance of deformed individuals in the families in question. The appended table shows that 124 affected persons were met with in these families, but only 87 normal ones—i.e., the condition occurred in 58·8 per cent.

Authority.	Affected.	Unaffected.
Fotherby[6]	16	10+
Parker and Robinson[5]	16	16
Mayer[7]	12	6
Lewis and Embleton[3]	44	32
McMullan and Pearson[8]	33 (+ ?)	21 (+ ?)
Present Paper	3	2

Deformities of Thumb.

The thumb deformities are of another order. Some authorities have considered that where a digit on the extreme radial side of the hand shows hyperphalangy it should be regarded as a supplementary index finger, with suppression of the real thumb. Noel[9] has shown from a study of the muscular supply that this view cannot be held, and he has brought out that "de tous les doigts c'est le pouce qui est le plus fréquemment supplémentaire." In other words, the thumb is not only the most differentiated digit of the human hand, but it is also the one most subject to variation.

These digital variations are often, though not always, inherited, but they are not all inherited in the same way. In Brockbank's pedigree[11] a digital malformation could be traced for many generations, affecting either sex, but always being transmitted through the male parent, though skipping generations here and there, so as to appear in the families of unaffected members of the clanship. In other cases, again, either or both sexes may transmit, and the condition descends apparently indiscriminately through affected and unaffected alike.

In some families a digital malformation appears to behave like a simple Mendelian dominant. In an unpublished case of octodactyly one of us has investigated this was the case; through a number of generations the percentage of affected off-pring of affected persons being 46 (ideally the figure should be 50), and of affected offspring of unaffected persons—themselves the offspring of a polydactylous parent—being nil. No definite rules can be laid down with regard to these cases, each family group must be studied by itself; a parallel state of affairs to what occurs in hereditary deafness, where, equally, we must be dealing not with one but with several analogous though really quite independent conditions.

In our case it is possible that the dichotomy of the thumb may have been due to a reduplication of an apical centre of growth in an original thumb-primordium in the early embryo. If this duplicature was of an adventitious nature it would explain why the condition of dichotomy of the thumb was not transmitted to her offspring. In that case we should have here a person the subject at the same time of a hereditary and of an acquired congenital deformity.

The deformity of the lower limbs presents such an appearance of cloven feet as would in the Middle Ages and the days of the search for "the devil's mark" have tended to bring so much trouble on its unfortunate possessors that the hereditary transmission of the malformation would have been very effectually prevented.

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Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF RECURRING EFFUSION INTO THE PERICARDIAL SAC,

PROBABLY OF TUBERCULOUS ORIGIN.

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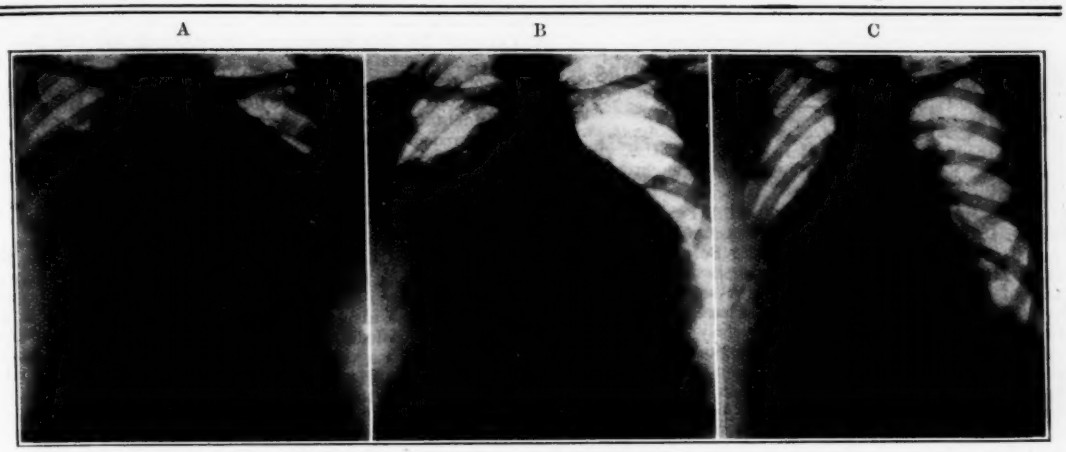
THE following case, presenting as it does unusual features, merits publication.

Patient, aged 21, admitted to hospital on Nov. 20th, 1918, had been quite well until the 8th, when he complained of weakness, headache, and pains in both sides of the chest, with cough and shortness of breath. He had had no previous illness. There was no history of consumption in his family. His father died from "microbe poisoning," but his mother, seven brothers, and two sisters were alive and well. On admission his temperature was 99°F., but the same evening it rose to 103°, with a pulse-rate of 116, and respiration-rate 28. Examination revealed crepitations at the bases of both lungs with generalised rhonchi.

On Nov. 21st the following notes were made:—"He complains of pains in the head and chest and his tongue is heavily coated. The pulse is very intermittent. The apex beat is just to the outer side of the left nipple line. No heart sounds are audible. There is relative dullness over the left lung in front and impaired note over the lower part of the right chest in front, together with pleural friction and râles. Rhonchi were audible over the right lung behind, but both lungs were resonant posteriorly." A later note (Dec. 4th) reads as follows:—"Pulse very intermittent, cough severe, and considerable sputum. Chest shows rhonchi throughout. Dry pleurisy left side." On Dec. 11th one pint of fluid was removed by aspiration from the right pleural cavity. The fluid was sterile and contained a few lymphocytes.

Examination by one of us (S. W. C.) on Dec. 15th showed the presence of a very large pericardial effusion, confirmed by X ray photograph. On Dec. 17th 500 c.cm. of clear fluid were aspirated from the pericardial sac. The fluid contained a few lymphocytes and was sterile. Considerable relief to the breathing and disappearance of the pulse irregularity followed the aspiration. An examination of the sputum for tubercle bacilli proved negative. On Dec. 29th the patient was cyanosed and breathless. The pulse was 140 and irregular. The heart's apex beat could not be felt, nor could the heart sounds be heard. An X ray examination demonstrated a reaccumulation of fluid in the pericardial sac. On the following day 1000 c.cm. of fluid were removed by aspiration. The aspirations were carried out under light general anæsthesia, chloroform and oxygen being administered through Shipway's apparatus. The trocar was inserted through the fifth interspace, close to the sternal border, and the fluid siphoned off. The fluid contained lymphocytes. No tubercle bacilli found.



Three X-ray photographs taken from a series which show the gradual decrease of fluid in the pericardium. A, taken on Dec. 27th. Three days later 1000 c.cm. of fluid were removed from the pericardial sac. On Jan. 6th 2050 c.cm. of fluid were removed. B, taken on Feb. 15th, three days before aspiration, when 1600 c.cm. of fluid were removed from the pericardial sac. C, showing condition the following day (Feb. 19th).

Further aspirations of the pericardial sac were carried out in conformity with the condition revealed by X ray examination, the patient developing an increasing tolerance, both constitutionally and symptomatically, to the presence of a very large reaccumulation of fluid. On Jan. 6th, 1919, 2050 c.cm. were removed. The fluid was darker in colour. No clots. On Jan. 31st over 1000 c.cm. were removed. On Feb. 18th, although the patient exhibited no symptoms of distress, X ray examination revealed a large reaccumulation of fluid—1600 c.cm. were removed. The fluid contained a small number of polynuclear cells, but was sterile.

At the time of the first aspiration there was distinct œdema of the front of the chest wall, but this did not recur to any extent as the pericardial sac refilled. For the first 10 days or so after admission to hospital there was a considerable amount of fever, ranging from 99° to 103°, but for the last few weeks the temperature chart has shown a subfebrile condition with occasional short rises. In view of the gravity of this case it is remarkable that the pleural and pericardial cavities alone showed any evidence of disease. At the present time (Feb. 25th, 1919) the patient is in fair general health. Although a little dyspnœic there is no orthopnœa and the pulse is perfectly regular, as shown by polygraphic tracing.

We consider both the pleural and pericardial inflammation in this patient to be the result of infection of these membranes with tubercle. The cytological picture presented by the predominating lymphocyte count, coupled with the uniform sterility of both pleural and pericardial exudates on ordinary media, clearly point to this conclusion. The special features in this case are the extreme distension of the pericardial sac and the large quantities of fluid removed by aspiration, the marked relief afforded by the early aspirations, and the remarkable tolerance shown in the later stages to the presence of very large reaccumulations of fluid.

COMMINUTED FRACTURE OF HUMERUS.

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THE following is a case of comminuted fracture of the humerus from the upper end of the shaft to the elbow, which healed and united firmly without the formation of sequestra.

Pte. ——, wounded on April 22nd, 1918. The bullet entered the upper surface of the right shoulder and passed longitudinally down the shaft of the humerus; wound of exit over right elbow. He was operated on at the C.C.S.; admitted to the Military Hospital, Endell-street, three days later. On admission there was a clean sutured wound on the inner side of the arm about 6 in. long, a small superficial wound the size of a shilling over the head of the humerus, and a wound on the outer side of the elbow-joint leading into the joint. Much swelling and œdema of the whole arm, forearm, and hand. X ray showed severe comminution of humerus from the elbow to upper end of shaft, with fracture of the olecranon and capitellum of radius. (See figure.)

I treated the fracture first on a broad internal angular splint passing up above the shoulder-joint, and fixed to a counterpoise for eight weeks, then with an aluminium splint and Gooch splinting. There was very slight discharge of pus from the elbow-joint for some weeks. The wounds healed with very little trouble, they were treated with bipp, and the dressings changed about once a fortnight under an anæsthetic. The musculo-spiral nerve was completely severed, and was sutured four months after the injury.

The remarkable fact is that the whole shaft united firmly in good line without the formation of a single sequestrum. Probably the bullet passed vertically through the shaft of the humerus, breaking it into small pieces without separating the periosteum. The elbow is ankylosed. Power in the fingers and wrist is fairly good, except for the muscles supplied by the musculo-spiral nerve. There is a good movement of the shoulder. The œdema was persistent, and did not subside for three months. The fragments had united firmly in 14 weeks.

Comminuted fracture of the humerus.

DORSET MENTAL HOSPITAL.—The Dorset County Council has decided to change the name of the county asylum to that of the Dorset Mental Hospital. At present there are 442 male and 602 female patients in the institution.

Reviews and Notices of Books.

The Medical and Surgical Aspects of Aviation. By H. GRAEME ANDERSON, M.B., Ch.B., F.R.C.S. London.: Henry Frowde and Hodder and Stoughton. 1919. Pp. 255. 12*s.* 6*d.* net.

THIS volume of the Oxford Medical Publications is the first of its kind in English, and represents the fruit of four years' medical work with the Flying Services. The author is to be congratulated on producing a book alike readable and of value to all interested in the selection and care of aviators. The general reader will share this interest. Up to the present it has been insufficiently realised that the care of the aviator is every whit as important as the care of the machine, and that safety in aviation is largely dependent upon the skill with which the airman is selected and the degree of preventive supervision bestowed upon him afterwards. This dependence will tend to increase, since with the advance of aeronautical science the mechanical factor of insecurity will be more and more eliminated.

In his opening chapter the author gives a comprehensive history of the interest taken by medicine in aeronautics from the early days of ballooning. The selection of candidates for aviation is dealt with, details being given of the method of physical examination of the various systems. Welcome particulars appear of the special tests beginning to be employed here and abroad, as, for example, the psychomotive and emotive tests devised by French and Italian authorities. By no means does it follow that because a man is physically fit to acquire the mechanics of flight he should be permitted to become a pilot. To become a successful aviator the candidate must, of course, be constitutionally fit to withstand the strain of prolonged flights, but he must also take an interest and pleasure in his work. The importance of this temperamental fitness is well brought out in the book, proper emphasis being laid upon the value of sports. The various types of nervous breakdown met with in flying pupils, now dignified by the term aero-neuroses, are described by the author, and those encountered in hospital cases by Major O. H. Gotch, who makes some very practical suggestions in regard to treatment and prognosis. A considerable section of the book is devoted to the description of aeroplane accidents, illustrated by photographs, all of which are good and some unique. The author's surgical bent is revealed by an instructive assemblage of cases of complicated fracture of the astragalus.

Lieutenant-Colonel Martin Flack has contributed an informing chapter on the applied physiology of aviation, embodying information in regard to the administration of oxygen and the proper clothing of the aviator, which adds greatly to the value of the book. The whole is a fine example of the excellent work which can be done, in coöperation with the commanding officer, by a medical officer with the proper mental equipment, when placed in charge of flying personnel.

A Text-book of Midwifery, for Students and Practitioners. By R. W. JOHNSTONE, M.A., M.D., F.R.C.S., F.R.C.P.E., Assistant to the Professor of Midwifery in the University of Edinburgh. Second edition. With 264 illustrations. London: A. and C. Black, Ltd. 1918. Pp. 495. 12*s.* 6*d.* net.

IN the second edition of his book Dr. Johnstone has carried out a complete revision and added sections dealing with the serum test for pregnancy, the administration of morphia and scopolamine, "twilight sleep," and the use of pituitary extract. After a clear account of the method of inducing twilight sleep he gives a very useful résumé of its possible drawbacks, and is careful to point out that its safe administration requires experience not only in the use of the method but also a good knowledge of the complications which may occur, especially the purely obstetrical complications. On the whole we gather that the author does not recommend the method as suitable for ordinary practice, and in this we agree. The serum test for the diagnosis of pregnancy he does not regard as sufficiently accurate to warrant any real reliance being placed upon it, and the method is too complicated to render it of any practical value to the general practitioner. In discussing the use of pituitary extract Dr. Johnstone utters the judicious warning that the indiscriminate use of the drug is to be deprecated in the strongest terms, but if employed with judgment it is on occasions of great use in obstetrics. In the treatment of accidental hæmorrhage we notice that the warning is given that recourse should never be had to packing the vagina after rupture of the membranes unless the uterus is contracting strongly. This is not in accord with the teaching of the Dublin School, who distinctly state that plugging the vagina is as effective after as before rupture of the membranes.

Figs. 51, 52, and 53 are correct, while on the opposite page Fig. 54 is quite incorrect, and is, indeed, contradicted by the preceding three figures. The illustration of Sims's position gives no real idea of what constitutes that position and would be misleading to the student. Some of the other illustrations are very good, others poor. The book, on the whole, is sound and forms a good guide for the student based upon the teaching of the Edinburgh School.

Employment Opportunities for Handicapped Men in the Optical Goods Industry. By BERT J. MORRIS. Series II., No. 6. Publications of the Red Cross Institute for Crippled and Disabled Men.

THIS report is the result of a survey of a considerable number of optical manufacturing establishments and prescription shops in New England made by the Bureau of Vocational Guidance of Harvard University. It deals with the making of the various parts of spectacles, eyeglasses, and goggles, including the lenses. The work falls naturally into three divisions—the making of lenses, the making of frames, and the carrying out of optical prescriptions. The making of lenses provides nine occupations, only one of which is unsuitable for disabled men. In the making of frames and spectacle cases five occupations are provided, four of which are available for handicapped men. Thirteen occupations suitable for the disabled are provided by prescription work. For each occupation the defects which allow a man to carry on are given. Much of the work can be carried out when seated; the employment is steady and the industry a growing one.

Criminology. By MAURICE PARMELEE, Ph.D. New York: Macmillan Company. 1918. Pp. 522. $2.

THE first question which naturally suggests itself to the reader on opening a volume with this title is, What is criminology? Mr. Parmelee would apparently reply without any hesitation that it is the science which studies crimes and criminals, and presumably there is an educated public in America which would regard the reply as adequate, for it seems that in the United States this "science" is already the subject of college and university courses. The present work, indeed, is primarily intended as a text-book for such courses. A very brief consideration, however, will suggest that the matter is not quite so simple as this ready answer assumes. That there is need, imperative need, of the scientific spirit and of scientific methods in the investigation of the problem of crime, as of all other bio-social problems, is, of course, undeniable; but acceptance of that position does not by any means imply that each such problem ought to be, or can be, taken as the subject matter of a separate and distinct branch of science. The facts which are relevant to a problem of this nature may admit, through their connexion with it, of being considered for some practical purposes from a single point of view, but they may none the less be of too disparate and heterogeneous a character to provide that common basis which is necessary for their treatment within the limits of a special science, with its own specific methods and its own interpretative hypotheses. The student who selected for exclusive study the railways of Hertfordshire would similarly find them partial and unsatisfying apart from their focus and explanation in the metropolis.

These considerations apply with peculiar force to the problem of criminality, and they explain why such a task as Mr. Parmelee has undertaken could hardly give satisfactory results, even at the hands of a writer with a more thorough and extensive equipment of scientific knowledge than he appears to possess. His work is an industrious compilation of facts and theories regarding all sorts of questions—biological, psychological, ethical, social—which arise in discussions about crime and criminals; and from the nature

of the case a compilation, though perhaps a more exact and more critical compilation than Mr. Parmelee has produced, is all that can be obtained, at all events as yet, from a "comprehensive survey of the whole field of criminology."

It may be useful to draw attention to these rather obvious points, not merely in criticism of Mr. Parmelee's volume, but also on the more general ground that the exaggerated claims which are made, at least by implication, in books of this class, tend to do harm by obscuring and discrediting the serious work which has been, and is being, done in the study of criminals from the standpoint of morbid psychology. It is probable that on these more moderate lines progress can be more surely attained than by efforts to construct a science of "criminology" out of the motley material that has been gathered together under the cover of that unlovely hybrid term.

Practical Physiological Chemistry. By PHILIP B. HAWK, M.S., Ph.D., Professor of Physiological Chemistry and Toxicology in the Jefferson Medical College of Philadelphia. Sixth edition, revised and enlarged. London: J. and A. Churchill. 1919. Pp. 662. 21*s.*

THE sixth edition of Professor Hawk's "Practical Physiological Chemistry" is a far larger book than the third edition, which was really the last, the fourth and fifth editions being reprints. The first features that we may notice are that the practical exercises are printed in different type, that the coloured plates and illustrations, except for a few new figures, are the same as previously, and that the general arrangement of the subject matter has not been changed. The whole book has been thoroughly revised and brought up to date. Nearly all the chapters have been expanded, and there are several new ones. The principal additions are to the chapters on Digestion, Gastric Analysis, Blood, and Urine. These are the portions of the subject which have received so much attention of late years both here and in America. All the new methods are given. They show that the physiologist and pathologist, as well as the botanist, need the services of the trained chemist; in fact, every university and medical school should have a biochemist to deal with the chemical portion of the subject. The modern methods are so difficult and require such skilled technique that only the trained chemist can use them. Very few biological departments (physiological, pathological, and botanical) have a proper chemical staff, and those lacking such a staff are urgently asking for the assistance of chemists. It must not be here forgotten that the chemist must be trained in biology, and that such chemists must be on an equal footing with the other professors and not be part of such a department for the usual routine testing work. The chemist's knowledge and his precise methods of work and thought can only lead to greater results in the future if the chemist is allowed to handle his material in his own way and not be unduly dictated to by his medical or other colleagues.

We read in the chapters on Blood and Urine Analysis about the new methods for estimating ammonia, urea, uric acid, acetone, sugar, &c. They suffice to show that the worker must be a trained chemist if reliable results are to follow from their use. The only method described for the estimation of urea is the urease method. It is exact and easy to use, but requires a well-equipped laboratory, as do also the other methods. The author rightly refers to Marshall as the originator of this method, but its adaptation to the routine analysis of urea was first described here and not in America. The new method of Van Slyke for estimating carbon dioxide in blood is given, also a chapter on acidosis. Here we have an excellent summary of hydrogen-ion concentration, which is described more fully elsewhere. There is every reason for amplifying the first description, for it is a difficult subject to most biologists. The most striking chapter is that on Gastric Analysis. Here we have a full account of those new methods which have been so successfully used in the author's own laboratory. We do not hesitate to recommend the sixth edition of this book, and feel sure that workers and readers will be grateful to Professor Hawk for the immense amount of time he has given to the preparation of his last edition.

The book gives an insight into the future requirements of the medical schools of this country. If we are to keep pace with the progress of other nations it is urgently necessary that changes be made in our physiological teaching and system of examining. It is especially with respect to the practical examinations that we are now more than 20 years out of date, and that something fresh must be immediately evolved. The old system encourages the student to study only those exercises which can be asked in an examination; many of them are obsolete. The new methods require more careful work and longer time. Surely it is better for the student to study a few useful exercises, and to study them thoroughly, than to study a large number in a haphazard fashion. The practical examination as such might be abolished, and the teacher required to certify that the individual student can perform such and such experiment satisfactorily. The teachers, since the qualifying of unfit students would reflect upon them, would be harder to satisfy than the external examiners; the general standard would rise and we should become not stereotyped but able to instruct in the modern methods.

Echo Personalities. A Short Study of the Contributions of Abnormal Psychology towards the Solution of some of the Problems of Normal Education. By FRANK WATTS, M.A. London: George Allen and Unwin, Ltd. 1918. Pp. 112. 4*s.* 6*d.*

THIS is a small volume which will be found of use and interest to teachers in particular, though all who are interested in the education of normal and abnormal children should find it stimulating and suggestive. The account which the author gives of the psychology of the crowd and of the qualities and virtues which are needed in the crowd educator will be valuable to the young teacher. Though the teacher, it is true, should be to some extent "the natural crowd leader of every class he has to instruct," most parents will feel that they would prefer their children to be encouraged to develop individuality—the power of thinking and deciding for themselves and of acting alone; would prefer them to be able to dissociate themselves from the crowd, and be guided by the light of their own reason rather than by the crowd impulse. The small child possesses more reasoning power than the majority of people suppose; he merely lacks the knowledge with which to make use of it. In his chapter on the Psychology of the Defective Mind the author describes the various forms of mental defect as recognised educationally, and the methods of grading. He says that the study of the subnormal mind should be of the greatest significance to the educator of normal children, inasmuch as the stages which the latter pass through quickly, and more or less spontaneously, are, in the case of the former, spread out over a long period or to a certain extent relatively fixed, so that the psychologist is enabled to apply a closer and more rigorous examination to the processes whereby the acquisition of skill and knowledge takes place. We warmly endorse his plea for the subnormal child, too bright for the mentally deficient school, but too dull to gain much or any advantage from the public elementary school. These words are worth really close attention:—

"The retention of children of the ages of 12 and 13 years in the lowest classes of the primary school, a practice which may be found to-day existing in London and in nearly all the districts which look up to the metropolis as the pattern and exemplar of all that is right in educational organisation, is utterly indefensible if the results of the study of subnormal children are to be taken at all seriously. Such children call out piteously for a more suitable grading and a curriculum and methods which will more effectively meet their needs; they should have them with as much justice as the definitely abnormal child who is blind and deaf has his."

The short chapter on the Supernormal Mind is but an introduction to a later work which will treat the matter in more detail. The great need for the exceptionally gifted child is individual attention. The ordinary school is unsuitable for him; the pace is so slow that sufficient demands are not made upon his activities; the teacher cannot give him sufficient attention; and he, as a rule, has a power of initiative and of originating new ideas far ahead of his fellows. Much has been done for the subnormal and the average, little or nothing for the supernormal. It cannot be too strongly urged upon those responsible for the future of the race that, to quote Mr. Watts, "more depends upon the effective training of our best brains than upon the more costly training of the subnormal child."

A Text-book of Physiology for Medical Students and Physicians. By WILLIAM H. HOWELL, Ph.D., M.D., Sc.D., LL.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Seventh edition, thoroughly revised. London and Philadelphia: W. B. Saunders Company. 1918. Pp. 1059. 21*s.* net.

No text-book of physiology, or indeed of any other live subject, can be kept quite up to date. Even while the seventh edition of Professor Howell's excellent work was in the press important experiments were being carried out at the Canadian Hospital at Taplow, a description of which must surely find its way into the chapter on respiration in the next edition. But apart from the discoveries by Haldane, Makins, and Priestley that Cheyne-Stokes breathing can be induced artificially as a result of limiting the depth of inspiration by their concertina apparatus and their subsequent experiments, which the author could scarcely have foreseen, no important research of recent years appears to be omitted from this volume. There are two features of the text-book which make it valuable to every serious student; it is interesting to read, and the text is freely adorned with references to the bibliography which appear as footnotes to almost every one of the thousand odd pages. The medical student who in his third year of study is impatient to be getting on with the practical business of medicine will find in the frequent allusions to applied physiology a stimulus to make him work hard at the science in which examiners rightly insist that he should become proficient. As in the case of previous editions, this book is well printed and well bound; the illustrations are clear and the price most reasonable.

The Refraction of the Eye: A Manual for Students. By GUSTAVUS HARTRIDGE, F.R.C.S. Sixteenth edition. London: J. and A. Churchill. 1919. Pp. 281. 7*s.* 6*d.*

THE continued popularity of this text-book is shown by the number of editions that have been published since its first appearance in 1884. The present one is substantially identical with the fifteenth edition (1911), with a few additions. The subject of heterophoria is given a chapter to itself, in which Harman's diaphragm test and the colour tests are explained. The chapter on spectacles is brought up to date by references to Crookes's glass, triplex glass, &c., and in the appendix the latest tests for commissions in the army will be found. The book is useful and reliable, and the only criticism we would offer concerns the chapter on presbyopia. Donders's diagram of the relation between age and accommodation is the only one given. This puts the average amount of accommodation in middle age considerably too low, and as it is commonly found in text-books the result is that students in ophthalmic out-patient clinics habitually over-correct their presbyopic patients. The faulty diagram here reproduced has now been superseded as the result of statistics based on wider experience, the subject having been specially studied by Duane in America and Ernest Clarke in this country.

Eyes Right: Papers for Teachers and Parents on the Hygiene and Treatment of the Eye. By JAMES M. MACPHAIL, M.A., M.D. Glasg. London and Calcutta: Butterworth and Co. 1919. 1 rupee.

THIS little book may be found useful in places where medical aid is hard to obtain. The best chapter is that on Ocular Hygiene, which is dealt with from the point of view of the school teacher. The chapters on treatment err in attempting to present a summary of the diseases of the eye and their treatment—a feat which is both impossible and undesirable in a primer of this sort. What would be far more to the point would be to provide a means to distinguish between those symptoms which can be relieved by simple remedies and those which urgently require skilled attention. In a book of this sort such terms as "glaucoma," "trachoma," or "choroiditis," should be rigidly excluded.

Diagnostic Clinique (Examens et Symptomes). By Docteur ALFRED MARTINET. With 782 illustrations. Paris: Masson et Cie. 1919. Pp. 924. 30 fr.

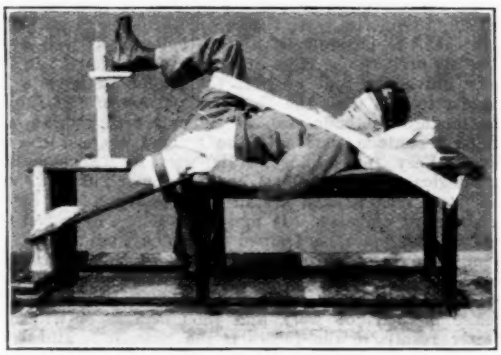
THIS book should be in the hands of every medical student who can read French. He will begin by reading Part I.—18 pages of sound sense on the nature of diagnosis and the sources of error therein. Part II., on clinical methods, he will study as his appointments demand. Part III., on symptomatology, he will have as a work of constant reference, read in close association with his experience at the bedside, clarifying his thought and stimulating his intelligence. There is no book published in English which will quite take its place, although Sahli's "Diagnostic Methods" comes nearest. The illustrations are profuse and admirably clear, with a few minor defects, which we hope to see remedied in the second edition; the surgeon, for example, who is engaged in a lumbar puncture has a flask of collodion at hand, but has apparently made no preparation for the reception of the spinal fluid. Amongst many good chapters that on arrhythmia is perhaps the best, but the whole work is thoroughly up to date and clearly written. For the signs observed in percussion and auscultation of the chest the author has adopted the conventions of Besançon and Sahli, which are mostly familiar to English readers. The book is well printed on good paper, but the binding is sadly inadequate.

New Inventions.

STRETCHING TABLES FOR FLEXED THIGH STUMPS AFTER AMPUTATION.

FLEXED stumps following amputation of the thigh are a very serious disability. The motion in walking with an artificial limb must take place in the lumbar vertebræ instead of in the hip-joint, when the flexion is marked. The resulting body-swing is ungainly and greatly limits easy and graceful locomotion.

All degrees of flexion occur, and most flexions in short thigh stumps are hard to overcome. The passive motion efforts of even a powerful masseur often become merely a struggle between the patient's ilio-psoas muscle and the manipulator, with the former victorious. When the stretch takes place in the pathological structure, or even in the contracted muscles, pain is induced, and the ilio-psoas involuntarily contracts, and in impatient patients is aided by their voluntary efforts. Apart from its frequent ineffectiveness the attendant is sorely taxed.



Showing the stretching table in use. The strap over the stump is too high up.

Description of Apparatus.

Under my instructions, about a couple of years ago, Private Reed, the carpenter at the Pavilion Military Hospital, Brighton, constructed certain table apparatus for continuous mechanical stretching of these stumps, and his ingenuity has resulted in several improvements. The illustration explains the structure and the process. The patient is "stretched" twice daily for half an hour at a time. The elevated sound limb prevents lordosis and gives a feeling of rest and stability.

The most powerful leverage is secured when it is as near the end of the stump as possible. Sometimes, however, the end is too tender to bear the pressure and leverage is sacrificed.

This has proved by far the most effectual method of stretching flexed thigh stumps. Tenotomy should never be resorted to till this method has been faithfully tried and has failed.

W. A. CHAPPLE, M.D., D.P.H.

THE LANCET.

LONDON: SATURDAY, JUNE 7, 1919.

Sugar Control in the Body.

IT has in recent years become apparent that the biochemist must play a prominent, if not a predominant, part in medical research, since he obviously holds the master-key to many of the problems of disease, particularly those associated with disordered metabolism. Moreover, many of the researches of the bacteriologist and of the pharmacologist involve biochemical considerations, and, indeed, their work has largely served to focus attention on this important branch of scientific investigation, where the biologist, the chemist, and the physicist must perforce meet. The individual biochemical monographs and papers are often of necessity so abstruse, involved, and academic in character as to be beyond the grasp of the ordinary practitioner, or even of those engaged in clinical research and special practice, and yet they may offer facts of vital importance in regard to diagnosis and treatment, when properly applied and correlated by a scientific clinician with the necessary knowledge and experience. An excellent illustration of this is afforded in the Croonian lectures on the Rôle of the Sympathetic Nervous System in Disease, delivered before the Royal College of Physicians of London by Dr. W. LANGDON BROWN, in June, 1918, and appearing in recent issues of THE LANCET.[1]

In his third lecture Dr. LANGDON BROWN deals with the problems of glycosuria and diabetes. He begins by pointing out that diabetes must be regarded as a disease of metabolism as a whole, involving a disturbance in the metabolism of fats, proteins, and even the inorganic salts as well as in that of carbohydrates. It is important to recognise, as he points out very forcibly, that in recent years it is the blood sugar content which has been studied in this disease rather than the urinary sugar, an advance made possible by improved methods, such as that of BANG, whereby the amount of sugar can be estimated in a single drop of blood. Dr. LANGDON BROWN takes the normal amount of sugar in the blood as 0·1 per cent. But the level which the blood sugar has to reach before it appears in the urine varies in different individuals, and in diabetics a condition of hyperglycæmia may be present even after the glycosuria has been controlled. It would appear that the kidneys of diabetics may show a diminished permeability for sugar, since the blood sugar in such cases may remain as high as 0·25 per cent. without glycosuria—an amount which would certainly cause excretion of sugar in a normal individual. Estimations of the blood sugar have also established the existence of a form of glycosuria with diminished blood sugar, or hypoglycæmia. Some of these, on the analogy of the well-known experimental phloridzin-glycosuria with hypoglycæmia, have been called cases of renal glycosuria, and some cases of glycosuria with obvious renal disease may merit such a description. Dr. LANGDON BROWN, however, goes on to show there are cases which do not admit of such an explanation, and to these SALAMAN applied the name of "diabetes innocens." In such cases the amount of sugar appearing in the urine is small, being only about 1 or 2 per cent., and its quantity is little influenced by ingested sugar, of which one or two parts in a hundred are excreted. GRAHAM has recently described another variety of this condition associated with a diminished carbohydrate tolerance, more sugar being excreted in the day, and as much as from 7 to 17 per cent. of ingested sugar appearing in the urine. It would seem that there may be a familial factor in some of these cases of the GRAHAM type, and Dr. LANGDON BROWN regards it as undecided whether cases of this type represent an early stage of true diabetes, or, as he thinks more probable, are instances of non-progressive diabetes innocens. On the other hand, he quotes cases which show that conditions of glycosuria with hypoglycæmia may be progressive and that they may pass into typical diabetes.

Dr. LANGDON BROWN devotes considerable attention to an analysis of ALLEN'S views on the pathology of diabetes, which he briefly defines as the condition resulting from the reduction of so-called pancreatic amboceptor below the requirements of normal metabolism. ALLEN maintains that in diabetes dextrose takes on a new and uniform behaviour in the body, acting as a typical crystalloid and producing diuresis by whatever channel it is administered, whether orally, subcutaneously, intravenously, or intraperitoneally. In the non-diabetic dextrose is a diuretic when given intravenously, thus acting as a crystalloid, except when given in minute doses admitting of prompt combination; when given in any other way—e.g., orally or subcutaneously—it is an antidiuretic in the non-diabetic, thus acting as a typical colloid. In endeavouring to explain in what form the monosaccharides like dextrose circulate in the blood, it is of interest to note that PAVY first employed the EHRLICH side-chain theory as an explanation and suggested that the internal secretion of the pancreas provides an amboceptor linking the simple dextrose molecule on to larger colloidal molecules, a view which Dr. LANGDON BROWN states is steadily gaining ground. He therefore proceeded in his lecture to compare the glycosuria associated with definite pancreatic lesions with that due to other recognised causes. He points out that the position of the pancreas in relation to the portal circulation makes it a favourable source for the sugar amboceptor since the internal secretion of the pancreas leaving by the pancreatic veins comes into relation with the sugar on the way to the liver from the intestines through the portal vein. ALLEN believes that the site of combination between sugar and the amboceptor is in the capillary endothelial walls. One point of difficulty

[1] THE LANCET, May 17th, 24th, 31st, and June 7th.

in regard to the pathology of diabetes is that cases of this disease occur in which no lesions are demonstrable in the pancreas, and ALLEN goes so far as to state that the "average diabetic has almost as good a pancreas as normal"; consequently if we adopt ALLEN'S view that pancreatic and spontaneous diabetes differ from all other forms of glycosuria in that dextrose now acts as a crystalloid owing to loss of the pancreatic amboceptor, while admitting that the structures which form that substance may be intact in spontaneous diabetes, then we are forced to conclude that some nervous action or inhibition has produced cessation of their action. ALLEN has based his fasting method of treatment on a supposed antagonism between the internal and external secretions of the pancreas since he believes that relief from the duty of external secretion permits of a more continuous production of internal secretion. Treatment by alimentary rest on this view means that the lessened activity of the pancreas in regard to the secretion of juice helps to restore its function as amboceptor, and the success of this treatment lends support to the pancreatic origin of spontaneous diabetes.

In his attempt to examine ALLEN'S view that all diabetes is pancreatic in origin and to study the rôle of the sympathetic nervous system in the production of diabetes and glycosuria Dr. LANGDON BROWN gives an interesting resume of the other forms of endocrine glycosuria and of the well-known polyglandular hypothesis of diabetes propounded by EPPINGER, FALTA, and RUDINGER. This hypothesis, which presupposes that diabetes depends on a loss of balance between various ductless glands, has been very adversely criticised by ALLEN on experimental grounds which do not seem to be convincing, according to Dr. LANGDON BROWN. It is now established that over-secretion by the pituitary gland, probably of the pars intermedia of this organ, always lowers the tolerance for sugar and may produce glycosuria, and WEED, CUSHING, and JACOBSON have shown that the sympathetic nervous system can produce glycosuria through stimulation of the pituitary. It is also a familiar observation that thyroid extract can induce glycosuria, and the occurrence of a lowered tolerance for sugar with occasional glycosuria in Graves's disease is well known, while conversely the increased sugar tolerance in myxœdema points in the same direction. Glycosuria can also be excited by excess of adrenalin and the glycosuria produced by so-called diabetic puncture is believed to be mainly produced through the adrenals. This form of glycosuria ceases when all the glycogen present in the liver has been mobilised. It may therefore be taken as established that under-action of the pancreas or over-action of the adrenal, thyroid or pituitary, can produce glycosuria, and if the polyglandular theory or loss of balance theory be adopted as the explanation Dr. LANGDON BROWN insists on the part that the sympathetic could play in producing such a loss of balance. He states that it may be taken as established that sympathetic stimulation increases blood sugar as a defensive measure, and that it causes increased secretion of the adrenals, thyroid and pituitary, the general effect of sympathetic stimulation being katabolic and mobilisation of blood sugar being a preparation for katabolic action. Vagus stimulation excites pancreatic secretion and Dr. LANGDON BROWN is inclined to infer that sympathetic stimulation may inhibit the secretion of the pancreas. He therefore sums up his view by stating that the sympathetic, both by increasing the secretion of glands which diminish carbohydrate tolerance and by inhibiting the gland which increases carbohydrate tolerance, would raise sugar above the leak-point and so induce glycosuria. Dr. LANGDON BROWN in summing up his conclusions regards diabetes as due to deficiency of the pancreatic amboceptor, which deficiency may be due to structural changes in the pancreas or to inhibitory action of the sympathetic on its internal secretion; this effect may be aggravated by sympathetic stimulation of other endocrine glands, thus further diminishing the power of carbohydrate assimilation.

We have endeavoured to give as succinctly as possible a resume of the closely reasoned analysis of experiment and clinical observation by which Dr. LANGDON BROWN arrives at these conclusions. We congratulate him on having afforded so interesting and suggestive a study of one of the most difficult and yet most fascinating problems in metabolic disease.

Bubonic Plague at Home.

OUR extensive shipping connexions all over the world make the arrival of a vessel with a case of bubonic plague on board an event of not infrequent occurrence. A soldier passenger on board the *City of Sparta*, which left Bombay on April 3rd, was taken ill during the voyage and died when off Gibraltar from bubonic plague, the diagnosis being confirmed bacteriologically. On arrival at Liverpool the vessel was treated as a suspected ship, and the usual precautions were adopted. On May 13th a native saloon steward was removed to hospital with high temperature and a developing bubo. He died four days later from plague, in his case again confirmed by bacteriological examination. The vessel was then thoroughly fumigated with sulphur-gas to destroy rats, and the crew's quarters were sprayed with petrol emulsion. There have been no further cases reported and no further developments need now be anticipated. Sporadic cases such as this often occur in our port cities, and may be safely left to be dealt with by our experienced port sanitary authorities, aided by the rigors of our inhospitable climate. Dr. ADDISON informed the House of Commons on Tuesday that a joint body representing the various Services was keeping the larger aspects of the question in mind. These precautions are likely to save us from a more intimate knowledge of the merciless scourge of which they are reminders.

Things are otherwise in India, where after more than 20 years' experience, there is even now occasion for research into the ætiology of plague. The disease still claims its thousands of victims in the

affected provinces every year, and still creeps on into new territory. From 1898 to 1918 2,992,116 deaths from plague were recorded for the Punjab alone. This figure, enormous as it is, represents less than the truth, for to it there should no doubt be added a proportion of the deaths from "fevers"—that great indeterminate nonentity which accounts for more than half the sum of India's mortality. Last year[1] we drew attention to the educative campaign of Lieutenant-Colonel D. T. LANE, I.M.S., which seemed at that time to be freeing the Punjab of rats and the plague in the distribution of which they play so important a part. Unfortunately, the year 1917–18 has seen a recrudescence of plague mortality throughout India,[2] and although the Punjab no longer retains its unenviable place at the head of the mortality statistics, it comes third in the nine administrative areas. A new ætiological factor has been discovered which seems to explain this. The Plague Research Commission find that "the severity and diffusibility of outbreaks of plague ..... appear to be dependent upon conditions of atmospheric humidity." Humidity in excess of the normal at certain seasons of the year—i.e., at certain temperatures—is found to be beneficial to the Indian rat flea (*Xenopsylla cheopis*) in all stages of its development. Indirectly, too, a heavy rainfall may result in an increase of plague, for it is common in the Punjab and in the United Provinces to hold up stocks of grain until the winter rains are well established. If the rain is plentiful large stocks of grain are liberated at a time when weather conditions are most favourable to the spread of plague. With the grain, of course, go the rats which it has harboured.

Thus knowledge grows, but at a heavy price. To the unofficial mind such statistics as these from India make poignant appeal. There are surely few countries in the Empire which stand in greater need of the most original and capable among English medical men. It is therefore imperative that the Indian Medical Service should maintain the high reputation which it has always held. In a recent issue[3] we recorded the new rates of pay in this service. From a memorial which is being widely signed it appears that this concession is not likely to give satisfaction inasmuch as the increase granted is much less than the 33⅓ per cent. rise in pay which had been, it was thought, approved. The signatories are asking for a pay which shall be the equivalent in purchasing power of what I.M.S. officers were drawing 16 years ago. This is not an unreasonable demand and in the interests of India it might be acceded to. One of our Special Correspondents, writing from India, suggests that the formation of an Indian Ministry of Health would improve the machinery of the public medical service. This may well be the case, but a new and expensive organisation cannot be embarked on until the existing service is adequately supported. Parsimony in preventive medicine is a very poor form of Imperial economy.

[1] THE LANCET, March 28th, 1918, p. 444.
[2] Annual Report of the Sanitary Commissioner with the Government of India for 1917.
[3] THE LANCET, May 3rd, p. 764.

THE epidemic of influenza associated with jaundice, described by Dr. W. H. Willcox in his Lettsomian Lectures, to which allusion was made last week, occurred in Northern *Persia*, and not in Northern Prussia as stated.

Annotations.

"Ne quid nimis."

RURAL HOUSING.

THE majority of sites so far approved under the Government's housing scheme have been urban sites. It is well to remember that the housing problem is at least as urgent in country districts as it is in the towns, although there may be little except the houses themselves to call attention to the need since the reaction period of rural authorities to any new scheme is notoriously a long one. Dr. Eustace Hill, the medical officer of health for Durham county, stated on May 2nd that over a quarter of a million persons in that county are living under overcrowded conditions. Other medical officers of health bear witness to overcrowding in other rural and more truly rustic counties; notably Dr. John C. Thresh, who has just published a valuable pamphlet[1] on rural housing conditions, based on his long experience in the county of Essex. He deals not only with the want of housing accommodation, but also with the unsatisfactory condition of many of the existing cottages, pointing out that a young couple who wish to get married will prefer to live together in a very insanitary environment rather than to postpone the date of their marriage, so that besides the problem of overcrowding there is also the problem of cottages which are occupied though quite unfit for human occupation. In the Ongar rural district, to take one example, 14 per cent. of the occupied cottages are not only unfit for human occupation but incapable of being made fit, while 17 per cent. are unfit but can be made fit. Dr. Thresh classifies the defects found in cottages in our rural areas into two groups. The first, which includes the conditions usually regarded as insanitary, is as follows:—

1. Overcrowding of houses on space.
2. Sites preventing free access of air and tending to make the houses damp.
3. Dampness of structure.
4. Draughtiness.
5. Insufficient light and ventilation.
6. Proximity to accumulations of filth.
7. Lack of proper drainage or of land suitable for absorbing slop water.
8. Impure and deficient water-supplies.

The second group, though less vital, is of very considerable importance.

1. Insufficient bedroom accommodation.
2. Lack of washing and bathing facilities.
3. Lack of water laid on to a sink.
4. Lack of private closet accommodation.
5. Lack of suitable cooking arrangements.
6. Lack of larder or food store.
7. Lack of impervious space (yard) behind house.
8. Insufficient garden area.
9. Lack of good footpaths on roads leading to the house.
10. Distance from school or from any social centre.

The question of roads and transport, as will be seen from points 9 and 10 of this second group, is not unconnected with the housing problem. We should like to see a comprehensive scheme of rural transport facilities developed in connexion with the electrical power stations, whose fate is now in the hands of Parliament. Most of the needs of rural housing which we have so far detailed, including the need for town planning, are met in the Government Housing Bill. It is

[1] Housing of the Agricultural Labourer, with Special Reference to the County of Essex, by John C. Thresh, M.D., D.Sc., D.P.H. The Rural Housing and Sanitation Association, 1919, pp. 81, price 6*d*. net.

interesting to note two new clauses added in the Committee stage, one of which compels the owner to keep his houses fit for habitation, making him responsible for this fitness to the local authority, and the other which makes the local authority itself ultimately responsible, through the Local Government Board, in carrying out the findings of the county medical officer of health. There remains one difficulty which is outside the scope of a Housing Bill but which may, nevertheless, prove a great obstacle to its success. Can the agricultural labourer afford to pay an economic rent for his new adequate and hygienic apartments? The larger his family the greater are his needs in this respect, and the less is the proportion of his income available for rent. This side of the problem cannot be ignored.

THE TRANSFUSION OF BLOOD.

As the late Dr. A. E. Stansfeld reminded us in an article on the principles of transfusion, published in our columns two years ago,[1] the idea of transferring blood from the healthy to the sick has appealed to the imagination of the medical profession for centuries. Its practical discontinuance a generation ago was due largely to two different considerations: the discovery of the remarkable benefits to be derived from the simple infusion of isotonic saline solutions, and an increasing appreciation of the dangers attending the agglutination and hæmolysis of injected blood corpuscles. The present returning popularity of transfusion of whole blood rests on the experience which time has shown of the limitations of saline infusion, even of Bayliss's gummy fluid, and of the possibility of avoiding hæmolysis by a careful selection of compatible donor and recipient. Two articles which we print this week illustrate in conclusive fashion how the method is being adapted to the needs of very varying conditions. Mr. A. Fleming and Dr. A. B. Porteous report on 100 cases of transfusion of large quantities (700–800 c.cm.) of citrated blood for secondary hæmorrhage following gunshot fracture of the femur. Dr. E. L. Hunt and Dr. Helen Ingleby narrate a case of grave anæmia treated by the repeated transfusion of relatively small quantities (200 c.cm. or less) of citrated blood. Both groups of authors describe apparatus, similar in principle but differing in detail, by which the transference can be safely and expeditiously carried out, and both recite the ritual necessary to determine compatibility between the blood of the giver and taker. It is noteworthy that while both quote Lee's table, based upon Moss's four groups of blood, they do so in a slightly different form; and we have printed and commend both to the careful study of readers, as the differing personal equation may help to familiarise them with all aspects of what is at first sight a rather elusive problem. But if we bear in mind that it is the cellular content of the donor's blood and the serum of the recipient's blood that matter, the difficulties largely disappear. One other point is strikingly brought out in the second article—namely, that the inadvertent introduction of incompatible blood produced first (as was to be expected) an alarming crisis, followed by a most unexpected and encouraging amelioration in the patient's condition. Dr. Stansfeld reported a similar surprise in Case 3 of his series, to which we have already alluded. The hæmolysed corpuscles of the donor apparently stimulate, as nothing else does, the recipient's blood-forming mechanism. Risk and result are here closely associated. Enough has been said to indicate some of the possibilities of blood transfusion and the desirability of exploring them still further.

[1] THE LANCET, 1917, i., 488.

AN ENDOWED CHAIR OF BACTERIOLOGY.

AT a meeting of the College Board of the London Hospital on Monday, May 26th, a letter was read from the clerk to the Court of the Goldsmiths' Company offering in the name of the Company a sum of £15,000 for the endowment of a Chair of Bacteriology. In making this gift the Court expressed the hope that their action might induce other organisations and individuals to consider the desirability of assisting the cause of medical education and research in a similar manner, a hope which all who have the interests of their country at heart must devoutly share, for in any attempt to remedy social evils, to prevent disease, or to improve the national physique the existence and coöperation of a skilled and highly trained medical personnel is obviously of primary importance. Such a personnel can only come from schools adequately staffed and equipped—in other words, adequately endowed. How deficient the London medical schools are in this last respect will be gathered from the fact that the present is, we believe, the first instance of the endowment of a chair in connexion with any subject of the medical curriculum at any one of them, and yet these are the schools which are probably the most favourably situated for the great purpose which they serve. It is in London that, owing to the density of the population, disease is most abundant; here the large medical museums and libraries are placed and scientific societies are most numerous and active. London is, in fact, designed by circumstance to be the medical educational centre of the world. Nothing is better calculated to lead to the realisation of this prospect than gifts such as that which the Goldsmiths' Company have so munificently made to the London Hospital.

LYMPHADENITIS IN THE RIGHT ILIAC FOSSA SIMULATING APPENDICITIS.

IN a recent issue of the *Progrès Médical* Dr. Paul Boulogne has reported three cases of a rare condition liable to be mistaken for appendicitis—lymphadenitis in the right iliac fossa. The histories were almost the same in the three cases. The patients were soldiers with no special morbid antecedents, except that one suffered from trench feet six months previously. They suddenly felt a heaviness in the right iliac fossa, which soon became painful. They then took to bed with a temperature of 104° F. in two cases and 100·2° in one. A swelling was felt extending from McBurney's point to Poupart's ligament. It appeared to be well circumscribed and to extend from the floor of the iliac fossa. The pain was severe, but the "defense" of the abdominal wall was less than in appendicitis. There was no vomiting, constipation, inguinal adenitis or wound or excoriation of the right lower limb. The treatment of appendicitis (rest, application of ice, and a watery diet) was followed. In three or four days the temperature fell and the swelling diminished from above downwards. It then became more and more evident that the swelling was adherent to the

floor of the iliac fossa, and about the twelfth day only an ovoid mass, plainly glandular, was found. After three weeks no symptoms, subjective or objective, were present. There was no doubt that the condition was lymphadenitis and not appendicitis. But what was the cause? It first seemed that infection must have entered from an unperceived abrasion in the lower limb. In 1905 Savariaud, writing in the *Presse Médicale* on "Iliac Adeno-Phlegmons," came to the following conclusions: 1. Abscesses of the iliac fossa and pelvic abscesses frequently follow lymphangitis of the lower limb. 2. Suppuration of the iliac glands, external or internal, is always preceded by inflammation or even suppuration of the inguinal glands, which constitutes the first relay of lymphatic infection. But in these three cases there was no trace of inguinal lymphadenitis. Dr. Boulogne quotes Lockwood to the effect that iliac glands receive not only the lymphatics of the lower limb, but also those of the appendix, and suggests that the lymphadenitis in his cases was of appendicular origin. However this may be, his cases are most interesting illustrations of the differential diagnosis between appendicitis on the one hand and lymphadenitis of the right iliac fossa on the other.

WOMEN AND THE MEDICAL SOCIETY OF LONDON.

AT the adjourned general meeting of the Medical Society of London last Monday evening the resolution, standing in the name of Dr. J. H. Stowers, to give medical women the right of attending, by invitation, three meetings of the society in each session, without according them the full privileges of membership, was defeated by an overwhelming majority. No vote was taken on the question of admitting women as Fellows of the society, the President ruling that any amendment having this intent was out of order, inasmuch as the resolution to this effect, standing in the name of the Council, had been defeated at the previous meeting. The rules of the society, therefore, remain as they were, and the practice will also presumably remain as it has been. The discussion made it quite clear that the Medical Society of London has no desire to recognise different kinds of privilege for men and women adherents, and for the time being the policy of frank exclusion has prevailed, and there continue to exist in London facilities for unisexual discussion of medical matters for those who prefer it, whether women or men.

THE TESTING OF MOTOR NERVES DURING OPERATIONS.

EVERY surgeon who has performed many operations on nerves after injury knows how difficult it is in many cases to identify the injured nerves where there has been much formation of scar tissue. The longer the time that has elapsed since the infliction of the injury the greater the alteration in the appearance of the parts and the greater the risks of unconsciously and unintentionally dividing important nerves in an attempt to restore nerve function. The tissues may be so matted together that it is almost impossible to distinguish the nerve from the surrounding structures. In THE LANCET for May 24th (p. 884) Mr. Harry Platt and Mr. E. S. Brentnall described a method which they have found of value in operations on motor nerves. They employ a faradic current with a bi-polar electrode, and by means of this instrument they are able at once to distinguish motor nerve fibres from scar tissue, if these nerve fibres are still in connexion with the muscle. When the electrode is applied to the nerve, and a contraction of muscle results, the surgeon can obviously be sure that he is dealing with the nerve to that muscle, and that its conductivity below the point of application is intact. Further, if he applies the electrode higher up the same nerve and the muscle then does not contract, the surgeon can infer that somewhere between the two points of application of the electrode there has been a breach of continuity of the nerve fibres, or that they are so compressed by scar tissue as to have lost their conducting power. Moreover, by this method he can, while he is freeing the nerve from the scar tissue, recognise that what resembles a band of fibrous tissue is really a branch of the nerve, and in this way the branch will escape unintentional division. Electrical stimulation has long been employed on the operating table for various purposes, but this is, we believe, the first systematic attempt to employ electricity during all operations on injured nerves. The war has provided material enough for the application of the method.

THE CHAIR OF ANATOMY AT UNIVERSITY COLLEGE, LONDON.

Sir George Thane, who has occupied the chair of anatomy at University College, London, since 1877, retires at the end of the current session and the Senate of the University have given expression to their deep sense of the services rendered by him to anatomical science. Dr. Grafton Elliot Smith has been appointed to succeed Professor Thane and will take up his duties in October next. Professor Elliot Smith graduated at Sydney University and afterwards at Cambridge, where he was a Fellow of St. John's College. Formerly professor of anatomy in the Egyptian Government School of Medicine at Cairo, since 1909 he has occupied the chair of anatomy in the University of Manchester.

THE POSITION OF MEDICAL RESEARCH.

A PAPER in another part of our present issue by Dr. Chalmers Watson proposes a scheme of national research in which the universities and the medical schools and colleges should act as local centres, and in any scheme based on national and imperial lines the geographical extent involved would have to be divided into research areas in much such a way as he postulates. Dr. Watson takes as concrete example Scotland as one of the research areas, the four chief centres in that area being Edinburgh, Glasgow, Aberdeen, with St. Andrews University and Dundee; we assume that his plan is intended to be universally adjustable. A small committee acting in close association with the central body would serve as an advisory committee, and with the coöperation of the best experts available in different branches would correlate the results obtained by investigators working on the same subject in different parts of the area. The committee would also be responsible for issuing recommendations regarding the employment of standard methods of investigation, and Dr. Watson concludes his paper by giving three examples of how he considers collective investigation should be carried out in the fields of disseminated sclerosis, influenza, and cardiovascular affections respectively. In the first and last affections investigations undertaken up to the present show a strong likelihood of some abdominal

infection being the point of origin of the disease; in the case of influenza organised bacteriological investigation of the naso-pharyngeal secretion, of the blood, the sputa, and the excreta are strongly urged. In passing we may remind our readers that an excellent paper giving the results of an investigation somewhat on the lines indicated above appeared in our issue of March 15th, by Dr. Braxton Hicks and Dr. Elizabeth Gray, of the Herbert Hospital, Woolwich. If intensive investigations were thus undertaken on imperial pattern, and with adequate scientific equipment, the world would no doubt benefit quickly and enormously. Indeed, much of what has occurred to Dr. Watson as the necessary steps to be taken for ensuring the national establishment of medical research has occurred to others in different degrees of similarity—and how should this not be when the circumstances are revealed to us all? None the less, the publication of this well-considered scheme is timely, for it brings many loosely related matters into a coherent whole.

PLEURO-TYPHOID.

THE subject of pleuro-typhoid, as typhoid fever ushered in by pleurisy is called, is discussed by Mondolfo,[1] who states that the first case of this kind was recorded by Lecorché and Talamon in 1881. Rendu and Gennes in 1885 were the first to isolate the typhoid bacillus from a pyo-pneumothorax in a typhoid patient. Similar cases were recorded by Valentini (1889), Loriga and Pensuti (1890), and Mya and Belfanti (1898). Authorities differ as to the frequency of pleurisy in typhoid fever. Liebermeister found it in 4 per cent. of his typhoid cases. Some writers give lower figures ranging from ½ to 2 per cent. (Lears, Fraenkel, Louis, McCrae, Lesné, and Ravaut), while others reckon it to be as high as 14 per cent. The male sex is most affected, as 10 out of 11 cases collected by Labiche, and 18 out of 19 collected by Remlinger were males. In the great majority of cases the pleurisy is situated on the left side, this localisation being attributed to the neighbourhood of the spleen, the chief habitat of typhoid bacilli. In support of this view Labiche cites Merklen's case in which purulent pleurisy in typhoid was accompanied by a splenic abscess. Pleurisy usually occurs towards the end of typhoid (Charrin and Roger, Fernet, Dineur, Weintrand, Menetrier, Achard, Remlinger, Sacquépée) or in convalescence (Loriga and Pensuti, Warburg, Remlinger, Siredey, Dopter), and pleuro-typhoid properly so-called is comparatively rare. Mondolfo's case was that of a soldier, aged 38, who was admitted to hospital with signs of a right pleural effusion. The constitutional disturbance was severe and delirium was a pronounced feature. Bacteriological examination of the blood and Widal's reaction were both negative on the sixth day of disease, but positive results were obtained on the twelfth day. In the second and third weeks characteristic symptoms of typhoid fever developed, such as enlargement of the spleen, epistaxis, and intestinal hæmorrhage. The disease lasted eight weeks in all and ended in recovery. The case thus confirmed the general rule as to the prognosis in such cases, the outlook being all the more favourable the earlier the pleurisy develops. On the other hand, when the pleurisy appears at the height of the disease, and especially in convalescence, there is a greater tendency for the effusion to become purulent. Examination of the pleural fluid in Mondolfo's patient showed a pure culture of typhoid bacilli, as in the cases reported by Loriga and Pensuti, Charrin and Roger, Fernet, Weintrand, Achard, Remlinger, and Dopter. More frequently the typhoid bacillus in the pleural fluid is associated with staphylococci or pneumococci, or staphylococci and streptococci. Cytological examination in such cases is of value as the presence of polymorphonuclear and endothelial cells in excess suggests that the pleurisy is of typhoid origin (Levi and Widal). Some writers maintain that the presence of typhoid bacilli in the pleural fluid prevents agglutination, but Widal has found that the fluid possesses a definite agglutinating power which is sometimes equal to, but more frequently below, that of the blood serum, and similar results have been obtained by Finley.[2]

[1] Il Policlinico, Roma, 1919, xxvi., Sez. Med., 193-9.

FAT-SOLUBLE A.

THREE instructive papers on the rôle in nutrition and the nature and properties of the fat-soluble accessory substance A by Mr. J. C. Drummond appear in the May number of the *Biochemical Journal*. The investigation was conducted in the Biochemical Laboratory of the Research Institute, Cancer Hospital, London, part of the expenses of the investigation being defrayed by the Medical Research Committee. At the outset Mr. Drummond accepts generally as experimentally proven that the dietary requirements of the higher animals include, in addition to a satisfactorily balanced ration of protein, fats, carbohydrates, and mineral salts, an adequate supply of three accessory food factors: (1) fat-soluble A; (2) water-soluble B, or antineuritic factor; (3) water-soluble C, or anti-scorbutic factor. Proceeding to a discussion on the nature of "fat-soluble A" as it occurs in oils and fats, Mr. Drummond regards it as doubtful whether it is a clearly defined chemical substance of comparatively simple constitution, but the discovery of its destruction by long exposure to relatively low temperatures (e.g., 37° C.) narrowed the field of possible identity very greatly; further, when it no longer appeared probable that oxidation or hydrolysis was responsible for the destruction, it was possible to rule out many substances, such as the unsaturated acids and the lecithins. Fat-soluble A is not extracted from oils by water or dilute acids, but is soluble in alcohol and may be removed in small quantity from oils in the cold by means of this solvent. Hydrolysis of oils in a non-aqueous medium at room temperature causes the disappearance of fat-soluble A, as the factor is not found present in any of the fractions derived from the original oil. There is no evidence so far which suggests that fat-soluble A is not a single substance, and it has not been identified with any of the recognised components of fats, such as glycerol, saturated or unsaturated fatty acids, cholesterol, lecithin, phosphatides or the lipochromes. In view of the low temperatures at which destruction may occur it is suggested that fat-soluble A may be a labile substance of ill-defined constitution. In the physiological experiments on rats the evidence is as follows:—

1. Fat-soluble A is necessary for the maintenance of health in the adult rat.

2. An ample supply of the factor is particularly important to the female rat during pregnancy and lactation.

[2] THE LANCET, 1912, ii., 1095.

3. A deficiency apparently brings about a serious lowering of the resistance against disease of bacterial origin.

4. No obvious characteristic pathological lesion has been detected in adult rats deprived of fat-soluble A for long periods, such animals usually showing normal reserves of body-fat.

5. The symptoms associated with a deficiency of the factor appear in comparable groups of rats after the same period of time whether the diet contains neutral fat or not.

6. Rats are able to absorb large amounts of fatty acids, and presumably synthesise these into fats, in the absence of fat-soluble A in the diet.

7. A deficiency of fat-soluble A in the diet does not exert any direct influence on the absorption of fat.

Indirect evidence suggests from the experiments that pure neutral fats may be dispensable components of the diet.

A SMATTERING OF GREEK.

IN a letter which will be found in our correspondence columns Dr. E. W. Ainley Walker calls attention to the last stand likely to be made at Oxford to retain a knowledge of the ancient Greek language as a condition of present admission to a University career. A course of severe mental discipline is as useful to the medical student as to any other, but medicine provides at several stages the necessary training in orderly method and precise thought, and there is no evidence that to the practitioner of medicine an acquaintance with Greek is anything more than a gracious accomplishment. Moreover, the amount required for test purposes is hardly more than a smattering. It would be a regrettable thing for Oxford to lose intending medical students on an irrelevancy, and we trust that Oxford medical graduates will say so decidedly.

THE LEGAL DEFINITION OF "RAGS."

THE Local Government Board have received complaints to the effect that the Rag Flock Act is not uniformly administered throughout the country, and in a circular issued to the local authorities it is pointed out that some of these authorities have been in doubt as to what flock is covered by the term "flock manufactured from rags" as used in Section 1 (1) of the Act. A case is quoted in which the flock consisted of jute refuse, such refuse being composed partly of waste fluff from the machines and partly of cuttings from woven jute fabric thrown away as waste in the process of manufacture. No part of the material had been otherwise used nor had any part been washed. The magistrate held that such flock was not flock manufactured from rags and dismissed the summons, but the decision was reversed in the High Court and the case was remitted to the magistrate to convict. While it was admitted that the cuttings in question were rags in the ordinary sense of the word, it was contended that they were not rags within the meaning of the Act, because it was held that nothing, however dirty, is a rag within the meaning of the Act unless it has been cut or torn from a piece of material which has been used as a garment and has become foul through contact with the human body. The court refused to accept that the word rag as used in the Act was intended to receive that limited meaning. The analysis of the material in question proved the presence of an excess of chlorine, and there was nothing in the Act to justify the contention that an offence is only committed when the pollution has arisen from the one cause suggested. The flock had been manufactured from rags which were in such a state of pollution, however caused, that they did not conform to the standard of cleanliness prescribed by the regulations. We have long contended that materials intended for use as bedding should be scrupulously clean, and we approve the decision of the High Court. The Local Government Board add that they regard it as desirable that medical officers of health should state in their annual reports what steps have been taken to administer the Act.

MEDICAL APPOINTMENTS UNDER THE MINISTRY OF PENSIONS.

THE problem of disablement is one of the many embarrassing legacies of the war, and is likely to employ a large proportion of medical talent for a long time to come. The Ministry of Pensions employs at the present time about 140 medical boards, each with a whole-time chairman and some 20 part-time officers. The number of medical referees can hardly be less than another thousand, and in one way or another 4000 or 5000 medical men are associated with the care of disabled men. The Minister of Pensions has just issued a circular letter to his staff pointing out that in consideration of the fact that large numbers of military medical officers have now been demobilised and desire employment under the Ministry, it is his intention to bring under review all existing appointments consistently with the prime aim of maintaining efficiency. So far as whole-time appointments are concerned preference has always been given to medical men who left their practices to serve in H.M. Forces, and the same principle is now to be applied to appointments involving part-time service on medical boards or as medical referees. The Commissioners of Medical Services are therefore enjoined gradually to replace whenever possible civil practitioners who have not served by demobilised officers, it being understood that attendance on medical boards is not to count as war service. Appointments as medical referees will be reviewed and thrown open to the candidature of all the practitioners in a district as soon as the majority of those who have served have returned. Every application will then receive consideration on its merits. In issuing the letter the Minister of Pensions takes the opportunity of expressing his appreciation of the excellent services rendered by medical men who have acted on the boards during times of unexampled stress.

PART of the long list of Birthday Honours, a goodly proportion of which fall to medical men, appears on p. 999 of our present issue. The remainder will be given next week. We congratulate the recipients.

Professor J. G. Adami, F.R.S., C.B.E., has been invited by the University Council of Liverpool to occupy the Vice-Chancellorship of the University, which becomes vacant in September on the retirement of Sir Alfred Dale.

Sir George Makins will deliver the Cavendish lecture at the West London Hospital on Friday, June 20th, at 8.30 P.M., on "The Rôle of the Consulting Surgeon in War."

THE death has occurred at his home in the Isle of Wight of Dr. Wyndham Cottle, who was for some time physician to the skin department of St. George's Hospital, London.

A SCHEME FOR THE COÖRDINATION OF CLINICAL RESEARCH BY THE STATE.

BY D. CHALMERS WATSON, M.D.EDIN.,
SENIOR ASSISTANT PHYSICIAN, ROYAL INFIRMARY, EDINBURGH.

CLINICAL research involves the acquisition of precise data regarding disease, observing the variations of one or more factors which enter into the picture, the careful control and counter control of the facts, and a wise discrimination in drawing conclusions. In many instances accurate observation and investigation of the physical signs are all that is required; in others the research necessarily involves the clinician securing the assistance of the physiological chemist, the pathological chemist, and the pathologist. In any case, quantities of data are a first essential, and these will only be forthcoming by the development of coördination, framed on new and business-like lines.

The Present Position of Research from the Practitioner's Standpoint.

In his practice the practitioner is constantly coming across cases of subacute and chronic disease, of a kind which he is unable to cope with successfully, and sooner or later these cases are sent into one of the leading hospitals in the country for investigation and treatment. Every medical ward in the country is at the present time full of cases of which the physician and the clinical teachers in charge have little or no precise knowledge as to the cause of the disease. It is full of chronic cases, such as chronic renal disease, disease of the central nervous system, rheumatoid arthritis, exophthalmic goitre, various types of anæmia, and other disorders, whose ætiology is unknown, and the resources of treatment correspondingly limited. There is little effort at either individual or coördinated investigation of such cases on the part of the teacher.

If the physician learns little or nothing from his observations of these cases, he can hand on little or no useful information or effective guidance to the practitioner. It is little wonder, therefore, that practitioners often comment on the futility of sending these cases to hospital. If the spirit of research does not actively pervade leading clinical teachers, the whole level of medical teaching and practice falls to a level prejudicial to the interests of the patient, the practitioner, and of the community generally.

There are many factors which in the past have tended to arrest the spirit of research in clinical teachers; one is the defective equipment of the institutions for the detailed investigation of the kind required. A second needs more than passing mention; it is the growth of specialism, with the resulting development of water-tight compartments, and the resulting inability of the specialist to take the necessary broad outlook on the problems with which he is confronted. In too many cases the whole training of the specialist is such as equips him for the diagnosis and treatment of diseases of the particular part of the body on which he specialises, without adequate regard to the interdependence of that system on other systems. This is a cardinal defect which requires correction in a well-organised scheme of research.

How is this condition to be remedied? Can a comprehensive and simple scheme be evolved whereby research on the part of clinical teachers throughout the country will be stimulated and an arrangement made for the maximum degree of coördinated effort on the part of the investigators? Can a scheme be evolved which will secure the intelligent interest and coöperation of the practitioners throughout the country? I believe it can on the following lines.

Scheme of National Research.

In a scheme of national research the University and medical schools and colleges would naturally act as local centres. In a sound scheme devised on National and Imperial lines it might be convenient to have the Empire divided into research areas. To take a concrete example, it is open to question how far the interests of Scottish workers could be secured by a London committee, and it might well be advisable to make Scotland one of the research areas, the four chief centres in that area being Edinburgh, Glasgow, Aberdeen, and St. Andrews University and Dundee. A small committee acting in the closest coöperation with the central body would act as an advisory committee, and with the coöperation of the best experts available in different branches would take stock of the work to be done, would co-relate the results obtained by investigators working on the same subject in different parts in their area, and would, with the help of the investigators themselves, assist in determining the further fruitful lines of inquiry suggested by the various results obtained by the researchers.

Standardised Methods of Investigation.

The committee would be responsible for issuing recommendations regarding the employment of standard methods of investigation—e.g., if the X ray examination of the digestive tract is made after the introduction of a bismuth meal a standard method should be adopted. Similarly, in the case of bacteriological examination of secretions or excretions it would be an essential for all investigators to employ at least certain standardised media, so that correct data are given for due comparison, and so on. The employment of standardised methods would in no way interfere with the investigator supplementing the examination by other methods which might appear to him to be of value. The adoption of this system would tend to develop rather than to retard originality on the part of the investigator. In fact, the investigator's capacity to develop modifications of the lines of investigations would itself be one of the indications of his originality and skill in research.

An "Intelligence Department."

One of the functions of the committee would be that of initiating subjects for research and of assisting to secure through local research committees individual workers. In addition to its functions of assisting research workers actually engaged in working at the bedside in hospital or in the laboratory, the committee would have the important function of instructing the practitioners of the area in regard to the subjects under investigation and inviting their coöperation so far as that is available under the conditions prevailing in their practice. This part would be done by what one might call an "Intelligence Department" in the central organisation. It may be useful to give one or two concrete examples of research work which could be initiated and organised by a central research committee on lines likely to be useful. An illustration can be taken from the field of neurological medicine, one from acute infective disorders, and one from general medicine. The following statement and recommendations based from it are not put forward as in any way exhaustive; they are rather intended to illustrate the principles which, in the writer's view, are essential in the development of a well-organised scheme of medical research, under the ægis of a Health Ministry. In a statement of the three examples selected it will be useful to refer, *inter alia*, to the present state of our knowledge of the ætiology of the disease in question; to any factor or factors which are militating against the success of any researches on the subject which are at present being made; to any additional lines of inquiry suggested for an extended coördinated investigation, and the reasons for thinking that these would prove a fruitful line of investigation.

Disseminated Sclerosis.

If there is one department of medicine more than another in which sustained clinical research has been assiduously carried out in the past 25 years, with valuable results, it is neurology. British neurologists have by long and thorough investigation added to our knowledge of the clinical history, the course, and the pathological anatomy of many disorders of the central nervous system. It cannot, however, be said that our knowledge of the ætiology of these diseases, or the means of their prevention and cure, have made any important advance. That is probably due to the fact that little or no attention in the way of research has been paid to the one side of the subject that is of real practical importance to the patient. I venture to think that if any real advances are to be made in our knowledge of the ætiology and treatment of many chronic diseases of the nervous system we must begin *de novo*, and study these cases more from the standpoint of general medicine and less from the standpoint of a system isolated from the others.

What is the real position of our knowledge of the ætiology and treatment of disseminated sclerosis at the present time? In the last edition of Osler's text-book, 1918, under

ætiology it is stated: "The cause of the disease is unknown; various authorities attach great importance to the infective diseases," and under treatment it is stated that, "No known treatment has any influence on the progress of the disease." It is noteworthy that the disease is approached entirely from the point of view of the nervous system, little or no attention being directed to the state of other systems, which are primarily involved in the nutrition of the nervous system.

The late Dr. Alexander Bruce, a leading authority on this disease, was strongly convinced that the process was toxi-infective, and at the time of his death he was, in conjunction with Dr. Dawson, engaged in an elaborate histological investigation of the morbid anatomy of the disease, in the hope that light might be thrown thereby on the nature of the morbific agent. This research has, since his death, been completed by Dr. Dawson. He has published in the Transactions of the Royal Society of Edinburgh the results of a most exhaustive investigation of the morbid anatomy of the disease by modern methods, supplemented by an admirable critical commentary on the results. He has come to the conclusion that: "The causal agent of the disease is probably of the nature of a soluble toxin and is conveyed to the nervous tissues probably by the blood channel." If his conclusion is a sound one, investigation should now be directed to ascertaining the central focus from which this soluble toxin finds its way into the system. The writer suggests that to this end detailed investigations of all such cases should now be made from the standpoint of general medicine rather than from the standpoint of the neurologist, attention being directed to clinical features suggestive of auto-intoxication or infection in these cases.

It is noteworthy that in the description of the clinical history and of the general morbid anatomy of the cases which form the basis of Dr. Dawson's investigation, there occur such statements as "with the exception of occasional bilious headaches, the patient can remember no other illness"; "there was considerable constipation"; "stomach dilated, some chronic gastritis"; "the whole colon from hepatic flexure to rectum is ulcerated, in some places down to the peritoneum"; but in the paper in question little or no significance is attached to these findings. For many years past the writer has been impressed by the frequency with which these cases show marked disorder in one or other of the mucous membranes of the body, which is frequently unaccompanied by subjective symptoms, and therefore readily escapes observation. From these data the conclusion may be safely drawn that the time is ripe for an organised effort to investigate the disease anew on coördinated, well-organised lines, in order that data may be obtained for arriving at a conclusion. A large quantity of material is advisable.

Methods of Investigation.

Under a well-organised scheme a considerable number of investigators would simultaneously undertake research on this subject throughout the Empire. The central committee would decide with the aid of experts the lines of investigation which were advisable for common adoption. They would issue recommendations as to the necessity of going more thoroughly into the clinical history of these cases from the general medical standpoint than is at present done. They would issue recommendations for a standardised method of investigation by bacteriological and other means, including bismuth meals, and they would encourage individual investigators to apply such other methods of investigation as appeared to them likely to further our knowledge of disease. When the individual investigations are completed arrangements might be made whereby at the annual meeting of the British Medical Association, in this and other countries, the results of the different investigators in each country might be presented, where criticism of a helpful kind would be made by clinical teachers and practitioners. Subsequently the research committee would review the results as a whole and issue further recommendations in the light of the results obtained. In the writer's opinion a thorough, well-organised investigation on these lines would be likely to yield in the near future results of far-reaching importance, both with regard to the ætiology of the disease and its prevention.

The same principles can be applied in the investigation of a large number of the common diseases which abound in every general hospital—e.g., rheumatoid arthritis, pernicious anæmia, exophthalmic goitre, chronic Bright's disease, &c.

A second illustration taken from the group of infectious diseases is

Influenza.

A considerable amount of research has been carried out on the bacteriology of the disease, and widely different conclusions have been drawn by skilled investigators working in different areas throughout the country. One of the reasons for the widely divergent results obtained by bacteriologists is the absence of standardised methods of investigation. Results have, in the past, been compared, when correct data for comparison did not exist. In a recent instructive paper on this subject, Sir Arthur Newsholme[1] pointed out the necessity for observation by different bacteriologists being made by comparable methods.

The study of the numerous published records which have appeared in the last few months shows that while the cases examined have been numerous the examinations have been largely restricted to a single observation at a particular stage of the disease. To clinicians with a large experience of the disease, who have watched its development through its different stages, from the period of invasion up to the date of recovery or death, a comment on the published records suggests itself—namely, the lack of completeness of bacteriological investigation on any single case. It is possible that the bacteriological flora obtainable from clinical material may vary widely at different stages of the disease; indeed, this possibility is suggested in some writings as a possible explanation of the divergent results obtained. In the writer's view the first essential from the bacteriological standpoint is a thorough and exhaustive examination of even a few cases made continuously throughout the course of the illness, the investigation being carried out on the general lines given later. It is advisable that the various secretions—likely sources of infection—blood and urine, should be systematically examined frequently and at regular intervals from the period of infection to the later stages of convalescence. If this were done and standardised methods of investigation adopted the necessary data for comparison would soon be obtained.

In the opinion of some epidemiologists there is a reasonable prospect of a return of the epidemic in the present year. Are we organising our resources in a wise and statesmanlike way against that recurrence? One of the functions of the Central Research Committee in a Health Ministry would be to have a scheme prepared which could be brought into play immediately on the outbreak of a fresh epidemic. Arrangements would be made whereby this scheme could be in the hands of the directors of all the research laboratories in the country immediately the outbreak occurs. Some general information regarding the scheme could similarly be communicated to all the medical officers of health and practitioners in their respective areas. For the time being the energy and the skill of various investigators throughout the country, who were engaged in various departments of bacteriological and allied research, could be switched off the less pressing work on which they were engaged to the more immediately urgent problem furnished by the epidemic.

A Scheme of Investigation.

It may be useful by way of illustration to present a brief outline of the scheme of investigation that lately suggested itself to the writer when he was placed in charge of wards set aside for the treatment of influenza. (The urgency of this problem may be gauged from the fact that the mortality in the cases admitted exceeded 24 per cent.) Owing to war conditions the carrying out of this scheme proved impracticable. The scheme submitted is doubtless incomplete and capable of amplification in many directions. It gives, however, a useful outline for purposes of illustration. It deals only with the bacteriological aspects of the subject. If it had been possible arrangements would have been similarly made for the detailed clinical investigation of the blood, blood pressure, urine, &c., by appropriate methods.

1. *Naso-pharynx.*—Bacteriological investigation of (*a*) all acute cases immediately on arrival; (*b*) a certain number of selected cases continuously; (*c*) all cases in the convalescent stages of disease; and (*d*) the earlier stages of the disease before the patients reach hospital.

2. *The blood.*—(*a*) Bacteriological examination; (*b*) inoculation experiments of known quantities of serum from acute cases; (*c*) application of appropriate serological tests, the blood of the patients being tested against the suspected organisms.

[1] THE LANCET, 1918, ii, 693.

3. *Sputum.*—Bacteriological examination of the sputum when present in all cases, and daily throughout the course of the disease in selected cases; inoculation experiments.
4. *Urine.*—Bacteriological examination of the urine in all cases, repeated frequently in all severe cases, more especially in those associated with albuminuria.
5. *Stools.*—In view of the prevalance of streptococci in this disease, special observation would be made of the number and the virulence of the streptococci present in the stools.
6. *Investigation of post-mortem material.*

It appears to the writer that it is unlikely that any substantial progress will be made in our knowledge of the causation of the disease until researches of a comprehensive character, framed on the above lines, have been carried out with the aid of standardised methods. The main essential to this end is more effective organisation and coördination.

Cardio-vascular Disorders.

A third illustration may be given from the group of cardio-vascular disorders. In a recent instructive address on the subject of medical education Professor J. Robertson, Birmingham, referred to the necessity, in the interests of preventive medicine, of special attention being directed to the investigation of diseases arising or first manifesting themselves in the prime of life. Diseases which made men prematurely old, which lessened their activities, and often terminated their career 10 or 15 years earlier than necessary. Every clinician is familiar with the type of subject described by Sir Bertrand Dawson, in whom "With fatigue and strain the plain muscular fibre gives out and tone and motility of the hollow viscera fail; they thus get atonic dyspepsia, constipation, leading later to conditions like intestinal stasis, visceroptosis, and colitis. These people have abdomens which are ever responsive to their worries and cares—they feel abdominally, and for that reason seldom think imperially." One of the pressing problems for clinical research at the present time is the need for determining to what extent the abdominal conditions referred to are in great part the cause, or in great part the result, of the fatigue and strain referred to. Research on well-organised and coördinated lines would speedily give information of the utmost value in solving this problem.

Valuable evidence in this direction has recently been given in the last report of the special committee appointed by the Medical Research Committee to investigate in soldiers "disordered action of the heart" (D.A.H.) or "valvular disease of the heart" (V.D.H.) under the control of Dr. Thomas Lewis. This report is based on an exhaustive study of approximately 1000 soldiers, returned as sick during training or on service, for actual or supposed defects of the cardio-vascular system, the investigation being undertaken by many investigators, the results providing an admirable illustration of valuable team work.

A short critical summary is given at the conclusion of the report of the present position of the ætiology and pathology of the condition in the light of the findings of the committee. The influence of the nervous system, thyroid gland, the possibility of myocardial factors, the hypothesis of bacteræmia, and the hypothesis of toxæmia are in turn critically considered. The most striking fact brought out in this summary is the statement made:—

"In 50 or 60 per cent. of the cases at least infections are legitimately suspected to have played a large part in the production of the malady. In not a few instances the source of the intoxication has been traced to an inflamed appendix or to dysenteric infection, to a suppurative condition in the pharynx, of the teeth; for the removal of the local disease has relieved the general symptoms. In what percentage of cases infections which have passed unsuspected or unheeded may have been responsible it is not possible to say, that in many the course of events has been of this kind is well within the bounds both of possibility and probability."

In another part of this admirable report reference is made to the frequency with which the symptoms have developed during convalescence from acute febrile disorders and infections of the bowel, but little or no further information is given as to the nature of the bowel disorder or the actual condition of the bowel as determined by modern methods of investigation. There is at the present time great room for investigation of cases in civil practice along the lines conducted by Dr. Lewis, in which the team is strengthened by the addition of workers specially skilled in ascertaining the physical condition of the primæ viæ by modern methods. If this important link in the chain is neglected the investigation is incomplete, with increasing risk of conclusions being drawn from the investigation which are not warranted.

Under the scheme of national research here advocated one of the functions of the central committee would be to determine in every instance whether a team working under its auspices on any given subject was from the outset as complete as desirable.

In the foregoing I have only touched upon some of the main functions of the Research Committee under a truly national or imperial scheme. If necessary, it would be easy to elaborate some further directions of their activities. Take, e.g., the geographical distribution of disease. Has any systematic effort ever been directed to ascertain the data available on this point, to appraise the significance of such data, or to initiate research along lines suggested by the facts ascertained? In this connexion the possible influence of climate, diet, and other factors on reproduction might require investigation. This in turn would lead to the consideration of the known facts regarding the influence of diet in modifying the structure and function of the tissues, and of modifying the intestinal flora, and so on. It would be found that the results obtained in one direction would be of value in controlling and counter-controlling facts obtained in other directions, and in this way we would avoid an unduly narrow outlook and keep clear of watertight compartments in research.

In the writer's view the time is ripe for the development of medical research on the above lines from an Imperial standpoint. Effective organisation and coördination is the keynote of the scheme. The scheme would be both comprehensive and simple and adapted to secure the maximum coöperation of all capable of contributing to its success. Its foundation would be a broad view of the term "medical research." The work of the clinician, pathologist, and bacteriologist would necessarily occupy a prominent place, but equal attention would be paid to the research work capable of being carried out by the individual and collective efforts of medical officers of health, epidemiologists, and others in a position to contribute largely to our knowledge of the cause of disease and its prevention.

THE ROYAL SOCIETY CONVERSAZIONE:

A RETURN TO PEACE-TIME.

THE conversazione which was held in the rooms of the Royal Society on May 28th presented many matters of interest, but on the whole the exhibition was a limited one contrary, perhaps, to a general expectation that after so many years' suspension of these meetings a comprehensive list of new developments would have been disclosed. As a matter of fact, the paucity of exhibits probably was a measure of the set-back which, apart from technical studies, the war has forced upon general scientific research. But several of the exhibits showed that the value of scientific work has been recognised by various Government departments. Certain sections of the exhibits might indeed well be described as "official," inasmuch as they represented the fruits of State-organised research. This is an entirely new departure at the Royal Society's conversazione, which we hope will be continued as an earnest of the fixed intention to bring science and industry more closely together.

Turning to the actual exhibits, we confine our attention to those of medical interest. Well-merited notice was given to Dr. J. S. Haldane's army form of apparatus for continuous oxygen administration. It was here pointed out that in cases of poisoning by irritant gas, as well as in other conditions, one of the main dangers is due to the fact that the partial pressure of oxygen in the lungs becomes inadequate to oxygenate the blood, and it therefore becomes necessary to add oxygen to the inspired air until a sufficient degree of recovery has been reached. By means of this ingenious apparatus the continuous administration of oxygen can be maintained for several days, the consumption of oxygen being regulated to requirements without waste. Bearing on the same subject was a model, shown by Mr. Joseph Barcroft, of a hospital established in the Cambridge Physiological Laboratory consisting of three small wards, each made of glass. The treatment of chronic cases of gas poisoning by means of continuous inhalation of oxygen consisted in placing the patients in glass rooms each for five days; they were allowed out for exercise for about seven hours each day. The assistance which

scientific researches have given to this method of treatment was well illustrated in the liquid oxygen container of no less than 50 lbs. capacity and the liquid oxygen vaporiser flask (1 litre) exhibited by the Director of Research at the Air Ministry. Who could have dreamed of this valuable application of Sir James Dewar's great discovery that liquefied gases could be indefinitely preserved by keeping them in vessels with a vacuum jacket! For a long time only of academic interest, the principle was applied to common human needs in the thermos flask promptly adapted by the Germans. Sir Almroth Wright, with Dr. L. Colebrook and Mr. A. Fleming, gave illustrations of the methods employed in the study of wound infections well known to our readers. The part played by the white blood corpuscles and by the blood fluids was experimentally explained. Close by, Mr. J. E. Barnard illustrated the methods of observing spirochætes by dark-ground illumination. In this exhibit it was pointed out that success depended upon the observance of certain optical principles, bearing in mind that the organisms are always within the limits of microscopic resolution in the direction of their length, but beyond the limits in breadth. Granular contents are ultra-microscopic, and these are seen only under certain conditions the practical compliance with which was demonstrated. Professor G. Sims Woodhead and Mr. P. C. Varrier-Jones exhibited their "quasi-continuous temperature-recording apparatus for clinical use," and records of continuous temperatures were shown. This method of obtaining a permanent record of the temperature of the human body was fully described by the authors in our columns. Dr. R. T. Leiper's demonstration served to illustrate the experimental transmission of bilharzia infections in man, and formed a very interesting further lantern-demonstration given in the meeting room during the evening. It was explained that in Egypt nearly 50 per cent. of the population suffer from this disease, and owing to the risk to which our troops were exposed the War Office, in conjunction with the Medical Research Committee, authorised in 1915 a special inquiry into the mode of spread and prevention of the disease. In the investigation it was shown that the vesical and dysenteric lesions of bilharziosis are caused by two different species of worms, and that these worms require freshwater snails as intermediate host. An exhibit which attracted considerable attention and which gave rise to much speculation was the frog and tadpoles obtained by artificial parthenogenesis. Mr. C. S. Goodrich and Mr. A. F. Coventry brought forward the apparatus used and results obtained by the method devised by Professor H. Bataillon in 1910, who discovered that unfertilised eggs of a frog will develop if removed from the oviduct and pricked with a very fine needle. Some 80 per cent. of the eggs so pricked undergo cleavage, a much smaller number pass through later stages of embryo formation, and a very small percentage develop into tadpoles and "succeed into metamorphosing into frogs." The "fatherless frogs" exhibited showed an animation not inferior to parental offspring. The demonstration in the committee room perhaps attracted a greater general interest than any other, because it referred to the rôle of nitrogen in peace and in war and its fixation from the atmosphere for either purpose. An actual working model producing ammonia from nitrogen and hydrogen was shown. The success of the method largely depends upon the intervention of catalysts, but certain conditions of pressure and temperature must be observed. This research, carried out by the Munitions Invention Department, has involved an enormous number of experiments in the direction of selecting the requisite catalytic agent. That success has followed the investigation is obvious from the fact that a process has been devised which secures the direct production of solid ammonium nitrate, the source of raw materials being the air and air alone. We may well pause and ask whether this new departure will leave us air to breathe when it will be largely drawn upon to supply fertilisers to keep the soil productive. The ocean of air in which we live is, however, a practically inexhaustible field, and the adaptation of an infinitesimal part to vegetable production, the basis of all food supplies (including animal), is a development of immense importance.

Sir Joseph Thomson, O.M., D.Sc., the President, received a distinguishsd company of Fellows and visitors, and the decision of the Society to resume its annual conversaziones was very generally appreciated.

MATERNITY AND CHILD WELFARE.

THE Department of Health of the City of New York has published a monograph by Dr. Jacob Sobel, the chief of the Division of Baby Welfare of the Bureau of Child Hygiene, entitled

Instruction and Supervision of Expectant Mothers in New York City.

The two main lines along which the municipal authorities of New York are working in order to decrease the infant morbidity and mortality rates are the control of infant deaths due to congenital diseases, such as congenital debility, prematurity, marasmus, convulsions at birth, &c., and the reduction of infant deaths during the first month of life. Congenital diseases are responsible for 41 per cent. of all deaths of infants under 1 year of age, for 75 to 80 per cent. of all deaths during the first month of life, and approximately for 90 per cent. of all deaths during the first ten days. About 37 per cent. of all deaths under 1 year of age occur during the first month of life. From 1884 to 1914 the death-rates from diarrhœal, respiratory, and contagious diseases has been reduced approximately 75, 53, and 88 per cent. respectively, whilst the rate for congenital diseases has been reduced only 1·5 per cent. The death-rate during the first month of life has remained practically unchanged for many years, whilst the total infant mortality-rate and the rate from the second to the twelfth months of life have progressively declined. Congenital diseases are responsible for a larger number of infant deaths than either diarrhœal or respiratory diseases, and the majority of deaths due to congenital diseases are dependent upon the health and environment of the mother before the birth of the child.

Since the latter part of 1913 the Bureau of Child Hygiene has maintained a corps of eight nurses at the baby health stations for the purpose of instructing and supervising the expectant mother, following the case during pregnancy, the puerperium, and at least until the child is one month old, or longer if the conditions in the mother or child warrant it. In the near future it is hoped to keep in touch with these babies until they are a year old.

Investigation of Stillbirths.

Among other useful works undertaken by the Bureau of Child Hygiene by no means the least is the investigation of stillbirths. All stillbirths reported by midwives are investigated by physicians of the Bureau of Child Hygiene of the Department of Health, and wherever possible the cause of the stillbirth is ascertained. If such cause appears to be due to conditions which may be remedied, such as syphilis, overwork, diseased annexa, or retroflexion, the mother is revisited by a nurse, advised of these conditions in their relation to future pregnancies, urged to place herself under treatment, and to inform the nurse if she becomes pregnant again.

Anticipated Results.

It is hoped that with a widespread realisation of the importance of this subject, and with a thorough organisation, there will be, as the monograph says,

1. A reduction in the number of maternal accidents, injuries, and deaths incident to pregnancy.
2. A reduction in the general infant mortality and morbidity, more particularly from the congenital diseases and during the first month of life.
3. A decrease in the number of still and premature births.
4. The encouragement and increase of maternal nursing and the promotion of a more intelligent motherhood.
5. The production of healthier and stronger children at birth.
6. An improvement in the general well-being of the mothers and betterment of home conditions.
7. Improvement in the practice of midwifery because of increased supervision of midwives by personal contact with the nurses.
8. Diminution in the number of cases of sore eyes and ophthalmia neonatorum by instructing mothers to insist that silver nitrate be instilled into the baby's eyes directly after birth.
9. Bringing the mothers and babies under the educational and prophylactic influences of baby health stations as soon as possible after birth.
10. The establishment among the mothers of such confidence as will cause them to seek similar instruction in future pregnancies, and to act as agents in inducing other mothers to place themselves under similar instruction.

Summary.

Dr. Sobel pleads for more money and more education in order to be able properly to organise prenatal care, to control maternal morbidity and mortality, and to reduce the mortality rate from congenital diseases. The needs, he says, of the instruction and supervision of expectant mothers as they present themselves in New York may be summarised as follows:—

1. Zoning or districting the city along lines of the baby health station service, for instruction or follow up by nurses or social workers in the home, of mothers during the period of pregnancy, and for as long a period thereafter as necessary or possible, preferably one year.
2. Assignment by maternity institutions, whether with an in- or out-service, of nurses or social workers, within prescribed districts, for the instruction and supervision of expectant mothers.
3. Referring all mothers and babies discharged from maternity institutions to the baby health stations nearest their home addresses.
4. Coöperation of all private physicians in availing themselves of the services of the nurses of the baby health stations, so that mothers under their supervision may be instructed in the hygiene of pregnancy and referred to them in the event of untoward signs and symptoms. Settlements, neighbourhood guilds, churches, and day nurseries should refer to the baby health stations all expectant mothers coming to their notice.
5. An educational campaign of instruction for expectant fathers in order to arouse them to their duty and responsibility towards the mother and the future offspring.
6. Increased interest and coöperation of philanthropic organisations and individuals in the establishment of a prenatal service within prescribed districts and in furnishing to worthy mothers necessary material aid in the form of food, clothing, after-care, baby outfits, and obstetrical outfits.
7. A municipal or philanthropic employment organisation for securing work for unemployed expectant fathers so as to reduce to the lowest possible minimum the gainful occupation of the mother before or shortly after delivery, until the possible passage of a Health Insurance Bill, which includes maternity insurance.
8. Enactment of legislation prohibiting the employment of pregnant women in factories or manufacturing or mercantile establishments, for a period of two weeks prior to, and at least four weeks after, delivery, with provision for weekly stipends and care during this period, or, as a possible substitute, the establishment of day nurseries in or adjacent to factories, in charge of trained nurses, where mothers may nurse their babies, or where properly regulated artificial feeding can be maintained.
9. Increased appropriation by city authorities for the appointment of an augmented corps of nurses for instruction and supervision of expectant mothers to act as a wedge, by educational propaganda, into the inertia which now exists as to the urgency and importance of this problem.
10. Intensive studies as to the causes of still and premature births by careful analysis of the histories, examinations of the mothers, and autopsy findings on infants.
11. Provision for improved and increased obstetrical care in homes and institutions for those able to pay only a moderate fee or unable to pay at all. This presupposes greater and better outdoor maternity service and a larger number of properly equipped maternity institutions throughout the city. If the public could be taught that such service might be obtained the midwife problem and the meddlesome accoucheur would adjust themselves, and hospitalisation for delivery would become popular.
12. The application of an excessive supply of breast-milk in mothers for the use of premature and delicate infants within the maternity institutions, or in the neighbourhood, rather than the sale of the same for babies of the better classes.
13. Follow up of newborn babies by maternity institutions, directly or indirectly, for the entire first year of life.
14. Education of the public to the importance of having mothers who give birth to stillborn infants or who lose their children during the first year of life act as wet-nurses whenever possible, or give their breast-milk, for a limited period at least, to the worthy poor.
15. Persistent education as to the care of the breasts and the importance of maternal nursing, as the remedy par excellence in the reduction of infant morbidity and mortality, especially during the first month of life.
16. Provision for an increased number of temporary shelters, where mothers about to be delivered in institutions may place their infants and children during the period of confinement, and thus secure that peace of mind and contentment which is essential for the prospective mother.
17. The establishment at various centres throughout the city of permanent exhibits showing the various phases of prenatal and infant care, consisting of photographs, charts, convincing statistics, and literature. Periodical lectures, lantern slides, and moving pictures could be added as indicated. In other words, prenatal care should be popularised.

Attractive features in Dr. Sobel's scheme are the suggested coöperation of private physicians, the systematic investigation of still and premature births, and the increased obstetrical facilities for those of moderate means. The report might with advantage be taken to heart by infant welfare workers in this country. A perusal of it suggests that what is wanted here is a complete scheme drawn up for the whole country (and particularly for London) by some central authority, such as a Ministry of Health, to ensure close coöperation between all the various activities concerned. At present each child-welfare centre is largely a discrete entity, separate from hospitals, other centres, midwives, lying-in institutions, &c. Whilst the object of the child-welfare movement is the preservation of health and the prevention of disease, the hospital should be the focus of activity, where all treatment and investigation would be carried out; with increasing distance from the focus the more should be the stress laid on the prevention of disease. Child-welfare centres would then become outposts of the hospitals and accessory or collecting out-patient departments, as well as health centres, where the science of health, hygiene, and infant management is taught to girls, young women, and expectant and nursing mothers. In the centres the first deviations from health would be discovered, and by the close coöperation and help of nurses and practising midwives every case of still and premature births might be brought to light and investigated.

SOUTH AFRICA PUBLIC HEALTH BILL:

CHANGES MADE BY SELECT COMMITTEE.

THE principal Government measure in the present session of the South African Union Parliament is the Public Health Bill. Owing to the recent influenza epidemic it has attracted much more attention than it would otherwise have done, and its scope has been widened considerably in consequence.

The Bill was published on April 12th as amended by the Select Committee of the House of Assembly, and it has undergone material alteration whilst in its hands. The first of the new clauses provides for a Council of Public Health, to consist of the Minister as chairman, the chief health officer, and seven others nominated by the Governor-General, but apart from the officers of the Public Service, four of the latter to be medical practitioners.

Power is given to the Minister to declare any disease to be a notifiable disease.

The onus is placed on local authority for seeing that adequate measures are taken to prevent the spread of infectious disease, including the care of patients and the burial of the dead.

The Minister may by regulation close all bars in the event of a threatened outbreak.

Extra power is given in regard to the establishment and maintenance of special accommodation for the treatment of persons suffering from venereal disease who are liable to detention.

New clauses provide for notification by port health officers of disease conveyed in ships.

Provision is made regarding conscientious objectors to vaccination.

A new clause prohibits the admission of any child to school until a certificate is produced showing compliance with the provisions dealing with vaccination against small-pox.

The duty is thrown on the Department of Public Health of dealing with overcrowding, and the Minister is given power to make regulations with a view to preventing overcrowding.

The power of the Minister to make regulations is restricted in respect of districts of local authorities unless specially requested by the local authority concerned.

The final clause brings the Act into operation "not later than Jan. 1st, 1920," except in regard to the Public Health Department and Public Health Council, which are to come into operation before July 1st this year.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Inspection of Schools in Ireland.

THE Bill to provide for the medical inspection of school children in Ireland is likely to become law within the next few weeks. It will then be compulsory on local health authorities to carry out its provisions. A quite new sphere of activity will thereby be opened to the medical profession, and it is very doubtful whether inspectors can at once be found, adequate in number and competent in skill, to undertake a thorough scheme of inspection. No doubt the Local Government Board will specify the qualifications that will be required for the post of medical inspector, and also the conditions of service. In the public interest it is to be hoped that the Board will insist on the appointments being whole-time and adequately paid. The Board is, however, always timid, and permits many a good scheme to be spoiled by the parsimony of the local authorities. It is possible that the latter may attempt to put the duty of inspection on the already overburdened and underpaid dispensary doctor for a paltry addition to his salary. Such a plan would render the whole scheme of inspection nugatory. The inspection of the schools in his district would be a small and unimportant part of the month's or quarter's work of an official who had already too much to do. If medical inspection of schools is to prove valuable to the health of the race it must be carried out by men and women who will take it as their life's work, and settle down to become expert in their duties. Where these men and women are to be found in the first instance is a difficult problem. No doubt there are many young Irish graduates engaged in school work in England who would prefer, if offered adequate remuneration, to work in their native land among their own people. Unless, however, adequate remuneration is tendered, no ambitious or able young medical men or women are likely to offer themselves. Past experience does not suggest that either the Local Government Board or local health authorities in Ireland have a proper conception of adequate remuneration for professional work.

Belfast Ophthalmic Hospital.

At the annual meeting of this hospital held on May 27th it was stated that 1694 new patients had been treated during the year. A suggestion was thrown out by the Lord Mayor, who presided, for the union of the hospital with the Ulster Benn Eye, Ear, and Throat Hospital, and special complimentary reference was made to the services of Dr. J. W. Browne, who had been for the long period of 47 years a member of the staff, and who, single-handed, had carried on the work of the institution during the war, allowing his younger colleagues in this way to serve their country at the front. Dr. Browne having resigned his office of surgeon to the post-office the position has been divided, and the following have been appointed: Dr. D. R. Taylor, Dr. H. J. Monypeny, and Dr. R. M. Fraser.

May 30th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Compulsory Notification of Tuberculosis.

FOUR months ago M. Mourier, the Under-Secretary of State for the Service de Santé, presented to Parliament a Bill effecting the inclusion of tuberculosis in the list of diseases which must be notified to the prefectorial authority by all doctors. The Academy discussed these questions in 1913, and by a majority of a single vote accepted the inclusion of tuberculosis on this list. At that time there were long debates and serious opposition; moreover, nothing came of the Academy's decision. M. Mourier, taking his stand on the disquieting development of the tuberculosis problem since the war, resulting both from the return of prisoners who have become tuberculous during their imprisonment and from the effect of war strain on those who had been mobilised in spite of defective health, has brought this project once more to the front. There followed heated debates between those opposed to the Bill, led by Professor Albert Robin, and those in favour of notification, led by Professor Letulle and Professor Bezançon. The arguments used on both sides will be found in a previous letter.[1] Finally, the Academy charged a special commission to make a full inquiry and to report. Professor Bezançon, the spokesman of this commission, has now announced its decision, which is frankly in favour of compulsory notification. At its sitting on May 20th the Academy adopted, by 46 votes against 21, the motion of M. Vaillard, which is simply a repetition of that which the Academy had already voted in 1913. It reads as follows:—

Firstly, it is in the public interest that all open lesions of tuberculosis shall become notifiable as soon as the diagnosis has been established.

Secondly, the notification shall be made to a public doctor. It shall be considered as a professional secret, and measures of prophylaxis shall be carried out by the medical officer of health whenever the general practitioner has not undertaken them.

Thirdly, notification involves the public authorities in the duty of caring for sufferers from tuberculosis as their condition demands, as well as of providing succour for their families.

The Academy then passed a series of resolutions completing their plan of campaign, which includes treatment in dispensaries, sanatoriums, farm-colonies, and special hospitals. It draws the attention of the public authorities to the importance of making hygienic regulations for slaughter-houses, stables, and for such food-supplies as are exposed to street dust and contamination by insects. The Academy referred further amendments to the Tuberculosis Commission for their consideration. They did, however, agree that there should be created one or several institutes of hygiene whose object it should be to encourage the progress of this important science.

A Rise in Doctors' Fees.

Throughout France doctors are at present concerned with an increase in their remuneration. The cost of living, according to recent statistics, has increased by 207 per cent. Everywhere salaries and wages have been raised, often to an enormous extent, either spontaneously or as the result of threatened strikes. It does not seem right that the doctor alone should suffer. In this connexion it must be remembered that each member of the profession is master of his own fees, though the medical associations have resolved to support their members. A year ago the Medical Association of the Seine decided on a general increase in fees for consultations and visits, which entails a minimum fee of 7 fr. The syndicates of the Seine et Oise, of the Oise, of the Saône and Loire have done the same. At Auranches consultations in the surgery have been increased from 2 to 4 fr. and visits from 3 to 5 fr. At Charolles the consultation fee stands at 6 fr. and visits at 8 fr., with travelling expenses at 3 fr. a kilometre. Fees for night visits and emergency calls have been doubled. Medical associations are undertaking at the same time a campaign for the raising of medico-legal fees, such as those for attendance on factory accidents, for State medical aid, and for insurance societies.

May 30th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Mortality in Calcutta.

NEWS received by recent mails shows that deaths from the cholera epidemic now raging in Calcutta are increasing. The death-rates from influenza, small-pox, and plague remain much above the mean of the last five years. There have been a few cases of cholera among Europeans, with three deaths, last mail week. The total deaths from cholera number 277, being 213 above the average of the last five years. The deaths from plague fell to 23, against 34 in the previous week. The figure for influenza mortality, which was 98 a month previously, had fallen to less than one-third of that number. Deaths due to small-pox fell from 120 to 81.

The Need for More Doctors.

The Medical Services Committee, in the course of their investigation, invited the opinion of a number of representative non-official bodies on various points connected with the inquiry. Some of these matters were of a highly technical character, and the committee of the Bengal Chamber of Commerce, which was one of the

[1] THE LANCET, Feb. 8th, 1919, p. 236.

bodies addressed, frankly stated that they did not feel qualified to offer an opinion on such subjects. But they took advantage of the opportunity afforded to them of stating two general principles which should, in their opinion, be kept prominently in view in any scheme of reconstruction of the medical service in India. The first of these was the necessity for more medical and sanitary assistance than is at present available in India, and on this point the committee urged that whatever basis might ultimately be adopted for the reorganisation of the services, it should ensure the maintenance of efficiency and provide for the increase of personnel. Secondly, the committee emphasised that the scheme of reorganisation should recognise the basal principle that at every military station and at every civil district headquarters there should be available a European medical officer. Commenting on this the leading Indian newspaper says that the proceedings of the Medical Services Committee have not attracted the attention they deserve, and it is very desirable that full publicity should be given to any scheme of reorganisation proposed before steps are taken to carry it into effect.

The Madras Government have for some time past been impressed with the fact that the existing supply of medical practitioners is quite inadequate for the needs of the presidency, and that it is necessary to increase the number of both medical colleges and schools. The Surgeon-General has therefore been requested to work out in detail proposals for the establishment of a medical college at Vizagapatem. Plans and estimates for the rebuilding of the civil hospital there at a cost of over five lakhs having just been approved, he has gone into the question and evolved a scheme of medical schools and continuation medical schools. The Government of Madras, while accepting the proposal as the most practicable in the existing circumstances, indicate that it is not the last word on the subject of medical education. They place on record the opinion that the policy which is now forced upon them by the absence of hospitals of adequate size at various centres does not represent the ideal to which medical education should be directed, and state that they are not prepared to accept the view that a single medical college will permanently meet the needs of the presidency.

Hospital Stoppages in India.

It has been decided that for the remaining period of the war no recovery on account of hospital stoppages will be made from an officer undergoing treatment in a civil hospital owing to sickness attributed to military service. The entire charge preferred by the civil hospital authorities will in such cases be borne by the State and debited to His Majesty's Government through the Controller of War Accounts. This decision will have retrospective effect from Feb. 11th.

Hospital Wards as Hotels.

London is not the only place where hotel accommodation is at a premium. Owing to the crowded state of the Bombay hotels two wards in the Freeman Thomas Hospital have been lent for temporary use for passengers proceeding home by steamer. A ward on the ground-floor will be reserved for men and a ward on the second floor for ladies and children. Each ward accommodates about 60 persons. Morning tea is provided, but for other meals passengers must make their own arrangements. The management of the wards has been undertaken by Messrs. Thos. Cook and Sons.

The Indian Defence Force Medical Corps.

An Indian Army order states that service as a temporary officer in the Indian Medical Service will count towards promotion in the Indian Defence Force Medical Corps.

Anti-hookworm Campaign in Tea Districts.

Dr. C. A. Bentley has been deputed by the Government to start an anti-hookworm campaign in Bengal. In the tea gardens the modus operandi is that operations shall be started upon one selected garden under a deputy sanitary commissioner specially told off for the purpose, who will arrange for a microscopic diagnosis of the disease and will treat the local cases. A series of "talks," lectures, and demonstrations will be given, and pamphlets in the various vernaculars will be distributed to the literate people on the garden. Lantern lectures will also be given. A third of a lakh of rupees has been allotted by Government for tea and coalfields area in this campaign. The amount is very small in comparison with the work to be done, and the main cost will fall upon the gardens. Arrangements have been made for the supply of cheap microscopes and magic lanterns. A beginning will be made with the educated and literate people on each garden in educating them towards improved sanitation, and then an effort will follow to disseminate this education amongst the remainder of the labourers.

An Indian Ministry of Health.

The Indian press is pleading for further recognition of preventive medicine. It is pointed out that in England the demand for improvement in the machinery of public health has attained such force during the last few years that a special Ministry to deal with the problem is about to be established. The need for such a department in India has long been apparent. One of the duties of such an organisation would be to disseminate knowledge of disease and thus enable the people to benefit from the splendid results obtained by medical research. But no real progress is likely so long as the medical service is in the position of a poor relation. Sir James Meston, in presenting his final Budget figures to the Imperial Legislative Council last month, undertook to provide five lakhs of rupees as the nucleus of a fund at the disposal of a public health board. From this small beginning great results may flow. Substantial expenditure and drastic administrative reorganisation alike are essential if disease in India is to be efficiently combated.

Obituary.

CLIFFORD LUXMOORE DREW, M.B., C.M. ABERD.,

CORONER FOR THE WESTERN DIVISION OF LONDON.

WITH the death of Dr. Drew a notable personality in medico-legal London has passed away. When, some years ago, the London County Council took over the appointment of the London coroners it wisely decided that all future holders of the post must be possessed of both a medical and legal qualification. Dr. Drew, who was a barrister as well as a doctor, was the first coroner so appointed (in 1892). The area over which his jurisdiction extended, restricted at first, ultimately included five large London boroughs—Chelsea, Fulham, Hammersmith, Kensington, and Paddington. Heavy work told upon a constitution none too strong by nature, and after some failure of physical strength the end came suddenly with an attack of hæmoptysis.

Clifford Luxmoore Drew was the son of Mr. Charles Drew, who held a commission upon the Madras Establishment of the Honourable East India Company and was with his parents in India during a part of the Indian Mutiny. Upon returning to this country he received his preliminary education from private tutors, and in 1870 entered the London Hospital as medical student. He qualified M.R.C.S. in 1874 and then proceeded to Aberdeen, where in 1876 he graduated M.B. and C.M. He never engaged to any extent in private practice, preferring public service of some sort. With a view of becoming a coroner he entered the Middle Temple and was called to the Bar in 1890. At first he travelled the Western Circuit and also took cases at the Old Bailey; but in 1892, on being appointed coroner, his work as such monopolised the whole of his time. He was much interested in gunnery and for some time held a captain's commission in the 6th Brigade of the South-West Division of the Royal Artillery. He published in 1888 the result of his experiences in a little manual entitled, "Through the Woolwich Courses." He was a keen sportsman, hunting, shooting, and salmon-fishing being chief among his recreations.

Dr. Drew possessed an attractive personality, and it may be said of him that, with the exception perhaps of a recalcitrant witness, he was beloved by all who knew him. But persiflage or camouflage in the witness-box aroused his righteous anger, as many a witness discovered to his discomfort. He was a devoted book-lover, and most of his leisure time was spent in his library, the walls of which, apart from books, were covered with the trophies of the chase.

Dr. Drew married in 1880 Augusta, daughter of the late William Yeo, of Appledore, by whom he leaves one daughter, the wife of Captain G. C. Robertson.

A SOMERSET CENTENARIAN.—Miss Pattinson, of Darlington-place, Bath, celebrated the 100th anniversary of her birthday on May 24th.

The War and After.

UNIVERSITY COLLEGE AND HOSPITAL WAR MEMORIAL.

A War Memorial Scheme for University College, University College Hospital and Medical School, London, has now been settled and an appeal for a sum of £30,000 is being issued this week to all old students of the College whose addresses are known. The complete scheme, as settled by a representative and influential committee under the patronage of the Earl of Rosebery, Chancellor of the University of London, includes the following features: a war memorial album, containing the records of the academic and Service careers of the 268 men who have fallen; memorial tablets recording their names; scholarships for the sons and daughters of the fallen; a great hall for the use of the College and medical school; and the endowment of University College Hall, Ealing. The honorary treasurer is Captain Wedgwood Benn, M.P., who is a Fellow of the College, and donations sent to him at University College will be gratefully acknowledged. Members and friends of the College and medical school who have not already received copies of the scheme may obtain them by applying to the honorary treasurer.

WAR EMERGENCY FUND OF THE R.M.B.F.

At a meeting held last week, Lieutenant-Colonel Sir A. Pearce Gould in the chair, applications for assistance were considered and grants amounting to £1420 made to 10 persons. Applications should be addressed to the honorary secretary of the Fund at 11, Chandos-street, Cavendish-square, London, W. 1.

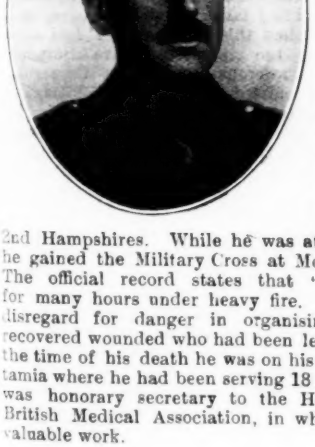
OBITUARY OF THE WAR.

ARTHUR CARLILE STURDY, F.R.C.S. ENG.,

MILITARY CROSS;

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain A. C. Sturdy, who died of dysentery in the Colaba Military Hospital, Bombay, on May 1st, at the age of 36 years, was second son of the Rev. H. C. Sturdy, for some time vicar of St. Paul's, Dorking. Educated at St. Paul's School, Pembroke College, Cambridge (in both of which he held a scholarship), and St. Bartholomew's Hospital, he took the Conjoint diploma in 1909, and, after graduating, held the posts of house surgeon and intern midwifery assistant at his hospital. He was senior resident medical officer at the Royal Free Hospital, and afterwards went into practice at Horsham, Sussex, where he was surgeon to the Horsham Cottage Hospital. He took a temporary commission as lieutenant in the R.A.M.C. in 1915, and served for two years in France, part of which time was spent as medical officer to the 2nd Hampshires. While he was attached to that regiment he gained the Military Cross at Monchy le Preux in 1917. The official record states that "he attended wounded for many hours under heavy fire. He showed a complete disregard for danger in organising search parties, and recovered wounded who had been left for several days." At the time of his death he was on his way home from Mesopotamia where he had been serving 18 months. Captain Sturdy was honorary secretary to the Horsham Division of the British Medical Association, in which office he did much valuable work.



THE HONOURS LIST.

The following awards to medical officers are announced:—

O.B.E.

Surg.-Lieut. Stanley Samuel Beare, R.N.

For valuable services in attending to the sick and wounded in the Dover Patrol.

Surg.-Cmdr. William Rhodes Harrison, R.N.

For valuable services as Senior Medical Officer of the Sixth Destroyer Flotilla.

M.B.E.

Surg. Sub.-Lieut. Donald Eadie Brown, R.N.V.R.

For valuable services in attending to sick and wounded of the Dover Patrol.

Distinguished Service Order.

Capt. Heerajee Jehangir Manockjee Cursetjee, I.M.S., attached 14th Sikhs.

For conspicuous gallantry and devotion to duty at Mushaq, Oct. 26th–27th, 1918, and at Sherqat, Oct. 29th. Throughout the operations he displayed the greatest zeal and disregard for danger while tending the wounded under heavy fire, working unceasingly for 48 hours. He has previously rendered excellent service, and once was severely wounded.

Bar to Military Cross.

Temp. Capt. John Dalglish Watson, M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty in evacuation of wounded from Toulgas during the period Nov. 12th–14th, 1918, under fire and through drift ice with a panic-stricken crew on the river steamer.

Military Cross.

Capt. John George Bennett, R.A.M.C., attd. 20th Bde., R.F.A.

For conspicuous gallantry and devotion to duty at Mushaq, Oct. 26th, 1918. He worked day and night in the open under heavy fire, tending the wounded, and superintending their evacuation. His energy and disregard of danger throughout were admirable.

2nd Class Senior Sub-Assist. Surgeon Bhagwan-Singh, I.O.M., I.M.D.

For conspicuous gallantry and devotion to duty at Sherqat on Oct. 29th, 1918. When the regimental aid-post came under heavy fire he displayed the utmost coolness in appeasing the wounded and alleviating their sufferings. Throughout the action his conduct was a fine example to his subordinates.

Capt. Maurice Dwyer, R.A.M.C., Spec. Res.

For conspicuous gallantry and devotion to duty on Oct. 29th–30th, 1918, at Sherqat. He displayed great disregard of danger during an attack on the enemy's position. He remained all day and night exposed to heavy fire searching for and dressing the wounded. In the dark he made his way forward to the firing line to see if his services were required, and stayed there attending to and superintending the evacuation of the wounded.

Capt. Harold Jacques, R.A.M.C.

For conspicuous gallantry and devotion to duty at the Lesser Zab on Oct. 25th, 1918. When the artillery brigade to which he was attached was in action he displayed great disregard of danger in attending the wounded under heavy fire. Four battery wagons were exploded by shell fire, but he continued to work in close proximity, rendering most valuable assistance until all cases were successfully evacuated.

Lieut. John Peter, R.A.M.C., Spec Res., attd. 17th Bn., Liverpool Regt.

For gallantry and devotion to duty during the attack on enemy positions near Kodish on Feb. 7th, 1919. Under heavy fire he attended to the wounded and placed them on sleighs. It was largely due to his fine conduct that the wounded were promptly evacuated and many lives saved.

Capt. (acting Major) Frank Mortimer Taylor, R.A.M.C., Spec. Res.

For conspicuous gallantry and devotion to duty on Dec. 30th, 1918, at Kodish, when he urged his sleigh drivers into Kodish through severe fire. He thus established a dressing station, collecting and tending the wounded under difficult and dangerous conditions.

A long list of honours is published, on the occasion of the King's birthday, in several supplements to the *London Gazette*, and we give here the names of some of the medical recipients, reserving to next week the conclusion of the list:—

K.C.V.O.—Mr. J. O. Skevington, F.R.C.S.

K.B.E. (*Military Division*).—Surg.-Rear-Admi. W. W. Pryn, C.B. Surg.-Rear-Admi. P. B. Handyside, C.B.; Surg.-Capt. D. J. P. McNabb, C.B., R.N.; Surg.-Capt. A. S. Nance, R.N.

Knight Bachelor.—Dr. J. C. Verco, of Adelaide, South Australia.

C.B.—Surg.-Capt. W. J. Colborne, R.N.; Surg.-Rear-Admi. A. G. Wildey; Surg.-Capt. G. T. Collingwood, M.V.O., R.N.; Temp. Col. W. Pasteur, C.M.G., A.M.S.; Col. S. L. Cummins, C.M.G., late R.A.M.C.; Col. H. A. Bray, C.M.G., late R.A.M.C.; Col. R. J. Blackham, C.M.G., C.I.E., D.S.O., late R.A.M.C.; Lt.-Col. (acting Col.) H. Collinson, C.M.G., D.S.O., R.A.M.C., T.F.; Col. G. W. Barber, C.M.G., D.S.O., Austr. A.M.C.; Col. H. T. Knaggs, C.M.G., late R.A.M.C.; Temp. Col. F. D. Boyd, C.M.G., A.M.S.; Col. T. du B. Whaete, C.M.G., late R.A.M.C.; Col. J. V. Forrest, C.M.G., late R.A.M.C.; Lt.-Col. and Bt.-Col. A. Chopping, C.M.G., R.A.M.C. Lt.-Col. (acting Col.) R. Pickard, C.M.G., R.A.M.C., T.F.; Col. J. R.

McMunn, C.M.G., late R.A.M.C.; Col. C. K. Morgan, C.M.G., late R.A.M.C.; Lt. and Bt.-Col. A. L. A. Webb, C.M.G., R.A.M.C.; Lt.-Col. and Bt.-Col. Sir E. S. Worthington, Kt., K.C.V.O., C.M.G., R.A.M.C.; Col. J. A. Gunn, O.B.E., C.A.M.C.; Col. C. F. Wylde, C.A.M.C.

C.M.G.—Maj.-Gen. J. J. Gerrard, C.B.; Maj.-Gen. J. T. Thomson, C.B., A.M.S.; Lt.-Col. W. Thorburn, C.B., R.A.M.C., T.F.; Lt.-Col. S. G. Barling, R.A.M.C., T.F.; Lt.-Col. (acting Col.) E. C. Montgomery-Smith, D.S.O., R.A.M.C., T.F.; Temp. Lt.-Col. C. G. Douglas, M.C., R.A.M.C.; Maj. and Bt. Lt.-Col. C. G. Browne, D.S.O., R.A.M.C.; Lt.-Col. (temp. Col.) T. P. Dunhill, Austr. A.M.C.; Temp. Lt.-Col. G. R. Thomson, Sth. Afr. M.C.; Lt.-Col. and Bt.-Col. (temp. Col.) W. W. White, C.B., I.M.S.; Lt.-Col. and Bt.-Col. A. J. Macnab, C.B., I.M.S; Temp. Col. H. Wade, D.S.O., A.M.S.; Temp. Col. C. C. Choyce, C.B.E., A.M.S.; Lt.-Col. G. M. C. Smith, I.M.S.; Lt.-Col. (temp. Col.) W. P. Gwynn, R.A.M.C.; Maj. and Bt. Lt.-Col. (acting Col.) C. W. Holden, D.S.O., R.A.M.C.; Col. W. T. Mould, late R.A.M.C.; Maj. (acting Col.) E. L. Moss, M.C., R.A.M.C.; Maj.-Gen. R. Porter, C.B., ret. pay; Lt.-Col. Sir J. K. Fowler, K.C.V.O., R.A.M.C., T.F.; Temp. Lt.-Col. P. W. G. Sargent, D.S.O., R.A.M.C.; Lt.-Col. (acting Col.) A. M. McIntosh, R.A.M.C., T.F.; Maj. (acting Lt.-Col.) J. Ward, D.S.O., R.A.M.C., T.F.; Lt.-Col. A. C. Rankin, C.A.M.C., Lt.-Col. (acting Col.) W. T. M. Mackinnon, C.A.M.C.; Lt.-Col. F. C. Bell, C.A.M.C.; Lieut. E. L. Stone, C.A.M.C.; Lt.-Col. J. H. Anderson, C.B.E., Austr. A.M.C.

C.I.E.—Lt.-Col. R. H. Maddox, I.M.S.; Maj. (acting Lt.-Col.) A. B. Fry, D.S.O., I.M.S.; Maj. (acting Lt.-Col.) L. E. Gilbert, I.M.S.; Maj. (acting Lt.-Col.) W. D. A. Keys, I.M.S.; Maj. (temp. Lt.-Col.) W. M. Anderson, I.M.S.; Maj. (acting Lt.-Col.) P. L. O'Neill, I.M.S.; Capt. (temp. Maj.) G. G. Jolly, I.M.S.; Lt.-Col. R. A. Needham, D.S.O., D.D.G., I.M.S.; Lt.-Col. W. D. Sutherland, I.M.S.; Lt.-Col. J. J. Bourke, I.M.S.; Lt.-Col. J. Stephenson, I.M.S.

C.S.I.—Col. C. Mactaggart, C.I.E., I.M.S., Inspector-General of Civil Hospitals, United Provinces.

FOREIGN DECORATIONS.

Italian.

Silver Medal for Valour.—Capt. J. E. Allan, R.A.M.C. (S.R.); Capt. W. Eldinow, R.A.M.C. (S.R.).

Bronze Medal for Valour.—Temp. Capt. F. J. A. Keane, R.A.M.C.; Temp. Capt. J. T. Lloyd, M.C., R.A.M.C.; Capt. (acting Maj.) G. R. E. G. Mackay, M.C., R.A.M.C. (T.F.).

Croce di Guerra.—Lt.-Col. (temp. Col.) S. A. Archer, C.M.G., R.A.M.C.; Temp. Capt. H. E. M. Baylis, R.A.M.C.; Capt. (acting Lt.-Col.) R. A. Broderick, D.S.O., M.C., R.A.M.C. (T.F.); Temp. Capt. J. M. Christie, R.A.M.C.; Temp. Capt. A. Emerson, R.A.M.C.; Capt. (acting Maj.) T. D. Inch, O.B.E., M.C., R.A.M.C.; Maj.-Gen. F. R. Newland, C.B., C.M.G., A.M.S.; Capt. R. L. Newell, R.A.M.C. (S.R.); Lt.-Col. (temp. Col.) R. Pickard, C.M.G., R.A.M.C. (T.F.); Temp. Capt. J. P. Shaw, M.C., R.A.M.C.; Capt. O. Teichmann, D.S.O., M.C., R.A.M.C. (T.F.R.); Capt. (acting Maj.) T. O. Thompson, R.A.M.C.

Japanese.

Order of the Rising Sun, 4th Class.—Col. W. R. Smith, R.A.M.C. (T.F.)

French.

Legion of Honour: Officer.—Surg.-Capt. G. T. Broad, C.B.E., R.N.

Officier d'Instruction Publique.—Surg.-Lieut. M. E. T. D. Viasto, R.N.

URBAN VITAL STATISTICS.

(Week ended May 31st, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had declined from 13·7 to 10·8 per 1000 in the four preceding weeks, further fell to 10·7 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 10·3 per 1000, and was equal to that recorded in the previous week, while among the remaining towns it ranged from 3·9 in Huddersfield, 4·6 in Leyton, and 5·0 in Cambridge, to 17·2 in Walsall, 17·3 in Rochdale, and 19·7 in Carlisle. The principal epidemic diseases caused 145 deaths, which corresponded to an annual rate of 0·5 per 1000, and included 42 from infantile diarrhœa, 40 from diphtheria, 28 from measles, 15 from whooping-cough, 13 from scarlet fever, 6 from enteric fever, and 1 from small-pox. Measles caused a death-rate of 1·7 in Middlesbrough, 1·8 in Tynemouth, and 3·2 in Rotherham. The fatal case of small-pox belonged to Croydon. There were 3 cases of small-pox, 1078 of scarlet fever, and 1106 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 3, 1055, and 1109 respectively at the end of the previous week. The causes of 20 deaths in the 96 towns were uncertified, of which 4 were registered in Birmingham and 2 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had declined from 13·7 to 12·8 in the three preceding weeks, was again 12·8 per 1000. The 307 deaths in Glasgow corresponded to an annual rate of 14·3 per 1000, and included 16 from measles, 9 from whooping-cough, and 1 each from diphtheria and infantile diarrhœa. The 87 deaths in Edinburgh were equal to a rate of 13·5 per 1000, and included 3 from whooping-cough and 1 each from measles, scarlet fever, and diphtheria.

Irish Towns.—The 123 deaths in Dublin corresponded to an annual rate of 15·8, or 0·6 per 1000 above that recorded in the previous week, and included 2 from infantile diarrhœa and 1 from diphtheria. The 98 deaths in Belfast were equal to a rate of 12·7 per 1000, and included 2 fatal cases of infantile diarrhœa.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill announce the forthcoming appearance of the following new editions:—The third edition of "A Short Practice of Medicine," by Dr. R. A. Fleming; the second edition of "First Lines in Dispensing," by Mr. E. W. Lucas and Mr. H. B. Stevens; the sixth edition of "The Ophthalmoscope," by Mr. G. Hartridge; and a third and enlarged edition of "Vicious Circles in Disease," by Dr. J. B. Hurry.

Correspondence.

"Audi alteram partem."

COMPULSORY GREEK AT OXFORD?

To the Editor of THE LANCET.

SIR,—At the third attempt in the course of the last 12 years, and after months of discussion, those resident members of the University who object to compulsory Greek have by an overwhelming vote in Congregation carried a statute to make Greek optional in the examinations leading to the B.A. degree.

But it is understood that the defenders of compulsory Greek intend to bring up their supporters from the country for the final voting in Convocation on Tuesday, June 17th, in the hope of throwing out the statute and maintaining compulsory Greek in Responsions.

May I, through your columns, appeal to Oxford medical graduates, of whatever opinion, not to leave the decision to one class of voters, but to make it more representative by coming up to register their votes in Convocation? Greek is already optional at Cambridge, and in the interests of the Oxford Medical School it is of great importance that our medical graduates should come to Oxford and personally record their opinion on this pressing question.

I am, Sir, yours faithfully,

E. W. AINLEY WALKER.

University College, Oxford, June 3rd, 1919.

THE ORIGIN OF LIFE: THE WORK OF THE LATE CHARLTON BASTIAN.

To the Editor of THE LANCET.

SIR,—I have a deep and affectionate regard for the memory of my late master, Dr. Charlton Bastian, and although he never convinced me he was right in his conclusions on the "Origin of Life," I nevertheless have followed with interest the work of others who have repeated his experiments. His son, Surgeon-Commander W. Bastian, has been occupied with other more important matters during the last few years, and is therefore unaware of the fact that his father's work has not been forgotten and that more than one investigator has examined tubes prepared under conditions similar to those used by the late Dr. Bastian, only with more stringent precautions against accidental infection. That Sir Ronald Ross is also unaware of such researches is a surprise; one always had the idea that he knew everything. The work has been repeated by Professor Hewlett at King's College. I do not know that he has ever published his results; one usually fights shy of wasting printer's ink on negative findings. Another investigator has been Professor Benjamin Moore, F.R.S. He described his results at the meeting of the British Association in Australia in 1914, and the only record I can find of this in print is the title of his communication in the British Association Reports for that year. He did find some curious precipitation structures which simulated organic growths, and exhibited lantern-slide photographs of them. If he ever published this in extenso I feel quite sure he would be only too happy to give Surgeon-Commander Bastian the reference. Then at Cambridge similar work has been carried out by Mr. H. Onslow, under the guidance of Professor F. G. Hopkins, F.R.S. He published a preliminary account of his negative results in *Nature* (1917, vol. xcviii., p. 489), and in an abstract I made of this paper I ventured to say, "This work settles the question of spontaneous generation (in Dr. Bastian's sense) once and for all." Onslow's full paper is published in the Proceedings of the Royal Society (1918, vol. xc. B, p. 266). The most recent paper which has appeared on the subject is by A. L. Herrera; it is published in *Comptes Rendus* (1919, vol. clxviii., p. 1015). It deals with the curious imitations of living structures which were noted by Moore. Herrera terms them "pseudo-amœbæ." I have dim recollections of still other papers during the last few years, but what I have said is sufficient to convince the readers of THE LANCET that scientific men have the "open mind" for which Surgeon-Commander Bastian pleads and that his father's work has not been ignored.—I am, Sir, yours faithfully,

W. D. HALLIBURTON.

King's College, London, W.C., May 31st, 1919.

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SIR,—Surgeon Commander Bastian, R.N., is under a misapprehension when he states that the experiments of the late Dr. H. Charlton Bastian on the origin of life have never been repeated. I undertook a series of experiments extending over three years, 1913–1916. The greatest care was taken exactly to follow Dr. Bastian's directions, and not only were the same apparatus and methods employed, but the principal colloidal constituent of the solutions (sodium silicate) was a portion of the same sample used by Dr. Bastian in his own experiments. Various other samples of sodium silicate were also employed, including a special colloidal solution prepared by Grübler, with which Dr. Bastian had obtained exceptionally satisfactory results. The quantities used were those which Dr. Bastian recommended in his published accounts, but were modified in some cases in accordance with written suggestions from him. The effect of tyrosine, which Dr. Bastian declared greatly increased the growth of the organisms, was also investigated. The results of these experiments, about 100 in number, which were invariably negative when stringent aseptic methods were employed, were communicated in a letter to *Nature* (1917, vol. xcviii., pp. 489–490), and a more detailed account was published later (Proceedings of the Royal Society, B, vol. xc., p. 266). With reference to the extremely life-like "growths" photographed by Dr. Bastian, I should like to call Commander Bastian's attention to the work of Professors Moore and Evans, and also of Sydney G. Paine, on the growth of colloidal simulacra.

It is only fair to point out that A. and A. Mary claim to have obtained positive results with Dr. Bastian's technique (*Knowledge*, January, 1917, p. 7), but as their assertion is unsupported by details of the technique they employed it is impossible to gauge its value. I am aware how exceedingly difficult it is to prove a negative, and I sincerely hope that someone else will accept Commander Bastian's challenge, whether the results should confirm my experiments or no.

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H. ONSLOW.

The Biochemical Laboratory, Cambridge, June 1st, 1919.

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In 1913 Dr. Bastian showed some of his supposed organisms to certain biologists and in consequence it was considered desirable that his experiments should be repeated. Accordingly, Dr. S. G. Paine, of the Imperial College of Science and Technology, "a skilled and experienced bacteriologist," investigated the subject, repeating exactly the work of Dr. Bastian and carrying out additional researches. As a result of this work (published in the Annals of Botany, vol. xxx., No. cxix., July, 1916) he concludes:—

"..... That the forms resembling organisms, described by Dr. Bastian as evidence of spontaneous generation of life, were in part purely inorganic simulacra formed by slow deposition of silica from colloidal solution, and in part depositions of silica upon dead fungal hyphæ which had developed in the solutions before these were filled into the tubes and sterilised."

To those of us who were privileged to examine the evidence of Dr. Bastian, the researches of Dr. Paine are conclusive. I am, Sir, yours faithfully,

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EPIDEMIC PERINEPHRIC SUPPURATION.

To the Editor of THE LANCET.

SIR,—At the present moment I have in my wards three cases of perinephric suppuration, and in the last few months I have had three others, one of which was during last week. In all of these cases the onset was acute and without any symptoms of pre-existing disease of the kidney. None of them has been seen by me until the symptoms had been in existence for a period of ten days to five weeks.

The three cases in the wards at the moment are two young women and a small boy. Each of them was pale, with a raised temperature, a rapid pulse, a marked leucocytosis, and a tender fluctuating swelling in the region of the kidney. There was frequency of micturition in one case only. This patient had numerous pus cells in her urine. Each of these three cases had a large incision made into the abscess in the loin, and the finger passed into it could not detect the kidney as such, but only a firm walled retroperitoneal cavity. Examination of the pus revealed only *Staphylococcus aureus*. In none of them was there any odour of the *Bacillus coli*. Each of these cases is progressing without incident.

A fourth case which came into hospital last week was much more seriously ill, with abdominal pain, T. 100·6° F., and rapid respiration. His liver extended to the level of the umbilicus; the whole of the right side of his chest was dull, the heart pushed 1½ in. to the left, and there was evidence of fluid. With an exploratory needle turbid fluid containing streptococci was drawn off. This effusion was evacuated by means of the aspirator. Next day he was considered well enough to permit of the excision of a portion of rib. Unfortunately he died under the anæsthetic before the operation was begun. Post-mortem it was found that he had a large subphrenic retroperitoneal abscess containing thick pus, which was pushing down an enlarged nutmeg liver. There was no abdominal lesion to account for it.

It is probable that this case began in the retroperitoneal tissue in the neighbourhood of the kidney and burrowed upwards, and that the turbid fluid in the pleural cavity was the result of an infection through the diaphragm.

One case which I saw a few months ago in Pentonville in a charity nursing home had been ill five weeks, and exactly resembled the cases in the Royal Free Hospital at the present time. From the moment I opened her abscess her recovery was uninterrupted.

A sixth case which I saw also a few months ago with Sir Maurice Abbot Anderson and Sir William Hale White was more puzzling at that time. She had been operated upon for fistula in ano. After progressing favourably for a week, she then developed a temperature and pain in her left kidney region. In spite of careful daily observation, including an examination under an anæsthetic, it was between two and three weeks before some turbid fluid was drawn off from her pleural cavity and a perinephric abscess was discovered. Odourless pus was evacuated and she improved at once, but later she relapsed into a condition rather resembling uræmia. I heard later that she became so well that arrangements were made for her to leave the nursing home. Unfortunately, the night before she was to do so she died quite suddenly of symptoms suggesting a large pulmonary embolus. At the time of her illness my theory was that her perinephric abscess was due to a septic embolus originating from the fistula operation; but in the light of these other cases I feel sure it must have been an entirely independent condition.

This series of cases occurring in a short time is either a unique coincidence, or it is possibly a relic of the recent epidemic of "influenza." I only wish to record them with a view to eliciting information from others who may have had a similar experience.

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JOSEPH CUNNING, M.B., B.S., F.R.C.S.,
Surgeon to the Royal Free Hospital.

Upper Wimpole-street, W., May 30th, 1919.

WANTED—A MEDICAL "LABOUR EXCHANGE."

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SIR,—Rather than wait until a disagreeable fact is forced upon one, it is wiser to forestall such an event by taking the initiative whilst one has it.

I have recently become conscious that the strain, mental and physical, of general practice was beginning to make itself evident, so I determined to get away from it as soon as possible and retire. I now find myself "bored to death" for want of occupation. A locum tenency is out of the question, for if I do not consider myself fit to run my own practice, which I have organised on my own lines and according to my own methods, I certainly would not take the responsibility of trying to work someone else's. I am good at figures; have kept account-books for a partnership by double entry, which have drawn commendation from professional auditors, and am interested in and have dabbled

McMunn, C.M.G., late R.A.M.C.; Col. C. K. Morgan, C.M.G., late R.A.M.C.; Lt. and Bt.-Col. A. L. A. Webb, C.M.G., R.A.M.C.; Lt.-Col. and Bt.-Col. Sir E. S. Worthington, Kt., K.C.V.O., C.M.G., R.A.M.C.; Col. J. A. Gunn, O.B.E., C.A.M.C.; Col. C. F. Wylde, C.A.M.C.

C.M.G.—Maj.-Gen. J. J. Gerrard, C.B.; Maj.-Gen. J. T. Thomson, C.B., A.M.S.; Lt.-Col. W. Thorburn, C.B., R.A.M.C., T.F.; Lt.-Col. S. G. Barling, R.A.M.C., T.F.; Lt.-Col. (acting Col.) E. C. Montgomery-Smith, D.S.O., R.A.M.C., T.F.; Temp. Lt.-Col. C. G. Douglas, M.C., R.A.M.C.; Maj. and Bt. Lt.-Col. C. G. Browne, D.S.O., R.A.M.C.; Lt.-Col. (temp. Col.) T. P. Dunhill, Austr. A.M.C.; Temp. Lt.-Col. G. R. Thomson, Sth. Afr. M.C.; Lt.-Col. and Bt.-Col. (temp. Col.) W. W. White, C.B., I.M.S.; Lt.-Col. and Bt.-Col. A. J. Macnab, C.B., I.M.S.; Temp. Col. H. Wade, D.S.O., A.M.S.; Temp. Col. C. C. Choyce, C.B.E., A.M.S.; Lt.-Col. G. M. C. Smith, I.M.S.; Lt.-Col. (temp. Col.) W. P. Gwynn, R.A.M.C.; Maj. and Bt. Lt.-Col. (acting Col.) C. W. Holden, D.S.O., R.A.M.C.; Col. W. T. Mould, late R.A.M.C.; Maj. (acting Col.) E. L. Moss, M.C., R.A.M.C.; Maj.-Gen. R. Porter, C.B., ret. pay; Lt.-Col. Sir J. K. Fowler, K.C.V.O., R.A.M.C., T.F.; Temp. Lt.-Col. P. W. G. Sargent, D.S.O., R.A.M.C.; Lt.-Col. (acting Col.) A. M. McIntosh, R.A.M.C., T.F.; Maj. (acting Lt.-Col.) J. Ward, D.S.O., R.A.M.C., T.F.; Lt.-Col. A. C. Rankin, C.A.M.C.; Lt.-Col. (acting Col.) W. T. M. Mackinnon, C.A.M.C.; Lt.-Col. F. C. Bell, C.A.M.C.; Lieut. K. L. Stone, C.A.M.C.; Lt.-Col. J. H. Anderson, C.B.E., Austr. A.M.C.

C.I.E.—Lt.-Col. R. H. Maddox, I.M.S.; Maj. (acting Lt.-Col.) A. B. Fry, D.S.O., I.M.S.; Maj. (acting Lt.-Col.) L. E. Gilbert, I.M.S.; Maj. (acting Lt.-Col.) W. D. A. Keys, I.M.S.; Maj. (temp. Lt.-Col.) W. M. Anderson, I.M.S.; Maj. (acting Lt.-Col.) P. L. O'Neill, I.M.S.; Capt. (temp. Maj.) G. G. Jolly, I.M.S.; Lt.-Col. R. A. Needham, D.S.O., D.D.G., I.M.S.; Lt.-Col. W. D. Sutherland, I.M.S.; Lt.-Col. J. J. Bourke, I.M.S.; Lt.-Col. J. Stephenson, I.M.S.

C.S.I.—Col. C. Mactaggart, C.I.E., I.M.S., Inspector-General of Civil Hospitals, United Provinces.

FOREIGN DECORATIONS.

Italian.

Silver Medal for Valour.—Capt. J. E. Allan, R.A.M.C. (S.R.); Capt. W. Eldinow, R.A.M.C. (S.R.).

Bronze Medal for Valour.—Temp. Capt. F. J. A. Keane, R.A.M.C.; Temp. Capt. J. T. Lloyd, M.C., R.A.M.C.; Capt. (acting Maj.) G. R. E. G. Mackay, M.C., R.A.M.C. (T.F.).

Croce di Guerra.—Lt.-Col. (temp. Col.) S. A. Archer, C.M.G., R.A.M.C.; Temp. Capt. H. E. M. Baylis, R.A.M.C.; Capt. (acting Lt.-Col.) R. A. Broderick, D.S.O., M.C., R.A.M.C. (T.F.); Temp. Capt. J. M. Christie, R.A.M.C.; Temp. Capt. A. Emerson, R.A.M.C.; Capt. (acting Maj.) T. D. Inch, O.B.E., M.C., R.A.M.C.; Maj.-Gen. F. R. Newland, C.B., C.M.G., A.M.S.; Capt. R. L. Newell, R.A.M.C. (S.R.); Lt.-Col. (temp. Col.) R. Pickard, C.M.G., R.A.M.C. (T.F.); Temp. Capt. J. P. Shaw, M.C., R.A.M.C.; Capt. O. Teichmann, D.S.O., M.C., R.A.M.C. (T.F.R.); Capt. (acting Maj.) T. O. Thompson, R.A.M.C.

Japanese.

Order of the Rising Sun, 4th Class.—Col. W. R. Smith, R.A.M.C. (T.F.)

French.

Legion of Honour: Officer.—Surg.-Capt. G. T. Broad, C.B.E., R.N.

Officier d'Instruction Publique.—Surg.-Lieut. M. E. T. D. Viasto, R.N.

URBAN VITAL STATISTICS.

(Week ended May 31st, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had declined from 13·7 to 10·8 per 1000 in the four preceding weeks, further fell to 10·7 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 10·3 per 1000, and was equal to that recorded in the previous week, while among the remaining towns it ranged from 3·9 in Huddersfield, 4·6 in Leyton, and 5·0 in Cambridge, to 17·2 in Walsall, 17·3 in Rochdale, and 19·7 in Carlisle. The principal epidemic diseases caused 145 deaths, which corresponded to an annual rate of 0·5 per 1000, and included 42 from infantile diarrhœa, 40 from diphtheria, 28 from measles, 15 from whooping-cough, 13 from scarlet fever, 6 from enteric fever, and 1 from small-pox. Measles caused a death-rate of 1·7 in Middlesbrough, 1·8 in Tynemouth, and 3·2 in Rotherham. The fatal case of small-pox belonged to Croydon. There were 3 cases of small-pox, 1078 of scarlet fever, and 1100 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 3, 1055, and 1109 respectively at the end of the previous week. The causes of 20 deaths in the 96 towns were uncertified, of which 4 were registered in Birmingham and 2 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had declined from 13·7 to 12·8 in the three preceding weeks, was again 12·8 per 1000. The 307 deaths in Glasgow corresponded to an annual rate of 14·3 per 1000, and included 16 from measles, 9 from whooping-cough, and 1 each from diphtheria and infantile diarrhœa. The 87 deaths in Edinburgh were equal to a rate of 13·5 per 1000, and included 3 from whooping-cough and 1 each from measles, scarlet fever, and diphtheria.

Irish Towns.—The 123 deaths in Dublin corresponded to an annual rate of 15·8, or 0·6 per 1000 above that recorded in the previous week, and included 2 from infantile diarrhœa and 1 from diphtheria. The 98 deaths in Belfast were equal to a rate of 12·7 per 1000, and included 2 fatal cases of infantile diarrhœa.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill announce the forthcoming appearance of the following new editions:—The third edition of "A Short Practice of Medicine," by Dr. R. A. Fleming; the second edition of "First Lines in Dispensing," by Mr. E. W. Lucas and Mr. H. B. Stevens; the sixth edition of "The Ophthalmoscope," by Mr. G. Hartridge; and a third and enlarged edition of "Vicious Circles in Disease," by Dr. J. B. Hurry.

Correspondence.

"Audi alteram partem."

COMPULSORY GREEK AT OXFORD?

To the Editor of THE LANCET.

SIR,—At the third attempt in the course of the last 12 years, and after months of discussion, those resident members of the University who object to compulsory Greek have by an overwhelming vote in Congregation carried a statute to make Greek optional in the examinations leading to the B.A. degree.

But it is understood that the defenders of compulsory Greek intend to bring up their supporters from the country for the final voting in Convocation on Tuesday, June 17th, in the hope of throwing out the statute and maintaining compulsory Greek in Responsions.

May I, through your columns, appeal to Oxford medical graduates, of whatever opinion, not to leave the decision to one class of voters, but to make it more representative by coming up to register their votes in Convocation? Greek is already optional at Cambridge, and in the interests of the Oxford Medical School it is of great importance that our medical graduates should come to Oxford and personally record their opinion on this pressing question.

I am, Sir, yours faithfully,

E. W. AINLEY WALKER.

University College, Oxford, June 3rd, 1919.

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with the mysteries of statistics and the compilation of statistical tables.

Is there no place where my medical experience, together with the aforesaid non-professional qualifications, could be made use of? Are there no insurance offices where the chief medical officer could make use of a medical man to do his preliminary spade-work? Are there no offices—e.g., those of publishers of medical works—where my services might be useful? If so, how am I to get into touch with them? The retired members of our profession require a bureau, similar to the Labour Exchanges recently instituted, where employer and would-be employee could be brought into contact.

I am, Sir, yours faithfully,

May 31st, 1919. RETIRED.

LEAD IN THE CASSEROLE.

To the Editor of THE LANCET.

SIR,—In an annotation to be found in your issue of May 24th you discuss the question of soluble lead in the glaze of casseroles, and draw attention to a note published in the *Analyst*. You might, therefore, possibly be interested in some other observations which have been made on this subject, but which were not included in the published paper.

Further experiments on the action of dilute solutions of organic acids on the glaze of casseroles appear to indicate that the plumbo-solvent action of citric acid is greater than that of acetic acid.

The results obtained with 1 per cent. citric acid were higher than those obtained with 4 per cent. acetic acid. Thus a casserole which had been treated several times with 1 per cent. citric acid and which gave 2·0 mg. of lead monoxide per sq. dm. of the glaze as an average result for each treatment, yielded an average of only 1·3 mg. per sq. dm. for each treatment when 4 per cent. acetic acid was used, but gave an average result of 3·2 mg. per sq. dm. when 4 per cent. citric acid was subsequently employed. Similar results were obtained when the acids were used in the reverse order.

The action of malic acid appears to be similar to that of citric acid, but only one or two experiments have been made with this acid. Casseroles, it may be noted, are specially recommended for cooking fruit, tomatoes, and curry, and also for pickling and making chutney. The ingredients of these dishes will contain citric or malic acid, and in some cases acetic acid.

A determination was therefore made of the amount of lead extracted from the glaze when tomatoes were cooked in one of the casseroles. 100 g. of tomato after cooking in the casserole yielded 1·8 mg. of lead monoxide (= 1·0 mg. per sq. dm. of the glaze). A control experiment was made with uncooked tomato, using all the reagents employed for the test. The acidity of the tomato, calculated as citric acid, was 0·35 per cent.

It should also be stated that the matter has already been brought to the notice of the Local Government Board and they are inquiring into the subject.

I am, Sir, yours faithfully,

HELEN MASTERS, B.Sc.

Household and Social Science Department, King's College for Women (University of London), Campden Hill-road, W., May 28th, 1919.

BRITISH AND GERMAN PSYCHOLOGY.

To the Editor of THE LANCET.

SIR,—To many who knew the man and his work it must have occurred how helpful in these days of doubt and difficulty would have been the clear vision and sound judgment of the late Henry Maudsley, and this feeling will be strengthened by the perusal of an article, written by him in 1916, which appears in the current number of the *Journal of Mental Science*. That the article, which is entitled "War Psychology: English and German," should have been held back so long is due to the censorship, a fact which itself is not without its interest for the psychologist, since any of the views expressed could only have been made to afford solace and assistance to the enemy by an unscrupulous ignoring of their context. Dr. Maudsley admits that the Germans believe themselves to "embody the highest culture in the world" and to be "justified in spreading it for the advancement of humanity," but he is by no means blind to their methods of giving effect to their aspirations. "Victory must be won; nothing else matters. And when it is won it will be a proof of moral as well as material superiority, being then the fulfilment of the Divine Will." His suggestion that German brutality evoked no protest in Germany is not one likely to have emanated from a pro-German. It is, perhaps, an over-statement, for some protests *were* made, though in circumstances which reflect no great credit on those concerned. A sectarian agitation against Roman Catholics was worked up in Germany on the strength of charges against the Belgian priesthood, and the Catholics, more particularly in the Rhenish provinces, found it necessary, for their own protection, to refute the charges and incidentally to demand better treatment for their co-religionists. Their organ, the *Kölnische Volkszeitung*, carried on a campaign with this object until the military authorities intervened. But perhaps what the censorship in this country took exception to in Dr. Maudsley's paper was some plain speaking about the British and their Allies. The German principle that the end justifies the means is, he holds, "what the stronger British race has constantly approved and practised in its subjugation of weaker and so-called inferior races in India, in Egypt, in New Zealand, in every part of the earth where it has enforced and established its vast dominion." Of the prospect that friendly relations would be maintained in perpetuity between the present Allies Dr. Maudsley was not hopeful, and it would be a temerarious person who would venture to contradict him. His main thesis is, indeed, that the ape and tiger are not yet dead in humanity, and he takes a pessimistic view of the probability that they ever will be. There is, however, ground for a more cheerful outlook, and with due regard to history one may trust that international conceptions of morality may eventually approximate more closely to those of the ordinary decent citizen.

I am, Sir, yours faithfully,

June 2nd, 1919. LIBRA.

PRISON REFORM:

THE POLICY OF THE HOWARD ASSOCIATION.

To the Editor of THE LANCET.

SIR,—In a statement of policy, just issued, the Howard Association, which recently celebrated its jubilee, says that the two main reasons for maintaining a penal system are the protection of the community and the reformation of the offender; and because society cannot obtain real protection unless the offender either be permanently segregated or permanently reclaimed, it follows that the chief business of our penal methods is to secure the reformation of offenders. To this end the association urges that prison governors and their subordinates shall be chosen as possessing special aptitude for reclaiming men and women, and that a certain amount of freedom to experiment shall be permitted. The association instances the striking results recently obtained in American prisons, notably at Sing Sing, New York, and in British prisons advocates abolition of the "silence rule," which is seldom observed, and breeds deceit in prisoners and warders alike; the shortening to a very brief term of the period of separate confinement; more free intercourse from judicious persons from outside; extension of the functions now exercised by the paid prison chaplain to persons of all denominations, paid or unpaid, having the necessary gifts and calling; adoption of the indeterminate sentence, ensuring that offenders shall be released when they are fit to be released, and adoption of the parole system, that they may receive guidance during the early days of liberty. An extension of the probation system is advocated, together with the appointment of more and better trained and better paid probation officers. The Association shows that the easy method of making prison the alternative to payment of a fine bears much more heavily on the poor than the rich, and urges that in certain well-defined cases it shall be compulsory on justices to allow time in which to pay fines. In cases of fraud, theft, and embezzlement magistrates should more often order compensation to be paid by the offender by instalments, as in the case of a civil debt. This course would supply the element of deterrence, now often felt to be lacking in the system of probation. Copies of the statement of policy of the Howard Association may be obtained on application to the secretary at 43, Devonshire Chambers, Bishopsgate, E.C. 2.

I am, Sir, yours faithfully,

May 27th, 1919. CECIL LEESON.

THE LATE DR. GUY BLACK.

To the Editor of THE LANCET.

SIR,—No obituary notice has appeared in your columns of the late Dr. Guy Black, who died on April 9th in his forty-third year, and I should like to supply the deficiency. Guy Black was the eldest son of Mr. James Black, late lecturer in anatomy to Westminster Hospital Medical School. He received his education at St. Paul's School and Dulwich College, and entered St. Thomas's Hospital in 1894. After taking his diplomas of M.R.C.S., L.R.C.P. Lond., he graduated M.B. Lond. in 1900 and started work in Norwood and Thornton Heath, where he rapidly built up a very extensive practice. Undoubtedly he worked too long and too hard, for not until he had been in practice for 11 years did he take a holiday. This was only a holiday in name, for on the eve of his departure for Switzerland he poisoned his thumb, and was obliged to return to England at once, where he passed through a serious illness. As the prolonged strain had undermined his constitution he gave up his practice and went to live at Rotherfield, in Sussex, to recuperate, taking locum tenens work for the medical men in the neighbourhood from time to time.

When the war broke out in 1914 he took charge of Surgeon-Major Trouton's practice, and did the work with his accustomed thoroughness and energy. Once again he succumbed to excessive zeal, and the severity of the influenza epidemic added immensely to the strain. For the last seven months his strength waned, and a gradually increasing anæmia and breathlessness led him to consult a colleague, who recommended an operation. For this purpose he entered St. Thomas's, but he went downhill so rapidly that the operation, which can only be described as a forlorn hope, was unavailing.

Dr. Black was a many-sided man, for, in addition to his medical skill, he was a mechanician of no mean order, and there were few "jobs" in the house or garage that he could not perform as well as a skilled workman. He was also very fond of antiques, and had furnished a house he had just bought at Norwood with many valuable works of art, but, unfortunately, he died before he could settle in his new home. He leaves a widow and one little girl aged 6 years.

I am, Sir, yours faithfully,

May 31st, 1919. CYRIL A. R. NITCH.

Medical News.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates were successful:—

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

Lena Cecilia Adam and Mary Neville Andrews, London Sch. of Med. for Women; Annie Hardy Banks (honours, distinction in forensic medicine), St. Mary's Hosp.; Robert Maitland Beath, Queen's Univ., Belfast; Joseph Erwin Adolphe Boucaud, St. Bart.'s Hosp.; Noel St. John Grey Dudley Buxton, Univ. Coll. Hosp.; John Capell and Percy Selwyn Clarke, St. Bart.'s Hosp.; Kathleen Mary Cogan, London Sch. of Med. for Women and St. Mary's Hosp.; Apollo John Cokkinis (honours, distinction in pathology and surgery), St. Mary's Hosp.; Donald Murray Connan (honours, distinction in forensic medicine), Westminster Hosp.; Gunaratnam Franklin Cooke, St. Bart.'s Hosp.; William Edmund Crowther, Leeds Univ.; John Horace Dancy, St. George's Hosp.; Leonard Snowden Debenham (honours, distinction in medicine and pathology), Guy's Hosp.; Simon Cyril de Silva Wijeyeratne, Univ. Coll. Hosp.; George Dunluce Eccles, Guy's Hosp.; Dennis Herbert Geffen (honours, distinction in pathology), Univ. Coll. Hosp.; Paul Currey Gibson, London Hosp.; Malcolm Gross, Westminster Hosp.; Ernest Eugène Herga, London Hosp.; Albert William Holgate, Univ. Coll. Hosp.; Mary Isabella Hounsfield, London School of Med. for Women; Philip Hudson, Univ. Coll. Hosp.; Patrick Hughes, St. Mary's Hosp.; George Maudslay Jackson, Bristol Univ.; Hassan Kamal, King's Coll. Hosp.; John Neil Leitch, St. Bart.'s Hosp.; Ifor Hughes Lloyd, Westminster Hosp.; Alice Lloyd Lloyd-Williams, London Sch. of Med. for Women and St. Mary's Hosp.; Kathleen McCrie McKeown and Gladys Mary Miall Smith, London Sch. of Med. for Women; Allan Hawkins Morley, London Hosp.; John Grimson Moseley (honours, distinction in medicine), London Hosp.; Rowland John Perkins (honours, distinction in medicine, forensic medicine, and surgery, University medal), St. Bart.'s Hosp.; Enid Maud Pfeil, London Sch. of Med. for Women; Bertram Henzell Pidcock, St. Bart.'s Hosp.; Julian Lionel Priston, London Hosp.; Rowan William Revell, Univ. Coll. Hosp.; Henry Bret Russell, St. Thomas's Hosp.; Hugh Thornton Rymer, King's Coll. Hosp.; Albert Ernest Sawday (honours, distinction in surgery), Guy's Hosp.; Frederic Agar St. John (honours, distinction in surgery), St. Mary's Hosp.; Maitland Scott and Cyril Sherris, Guy's Hosp.; Lily Dorothea Taylor, London Sch. of Med. for Women and Univ. Coll. Hosp.; Benjamin Thomas, St. Mary's Hosp.; Donald Carmichael Thomas, St. Thomas's Hosp.; Reginald Frank White, Bristol Univ.; and Sydney Carver Woodhouse, London Hosp.

ROYAL SOCIETY OF MEDICINE.—By arrangement with the West India Committee an occasional lecture will be given at the Royal Society of Medicine, 1, Wimple-street, W., on Thursday, June 19th, at 8.30 P.M., by Dr. Louis Sambon on The Sanitation of Tropical Lands, with suggestions based upon his West Indian experience.

SHOWER-BATHS are to be given at the hot mineral water bathing establishment to children attending the elementary schools at Bath.

Dr. C. Robertshaw Marshall has been appointed Regius Professor of Materia Medica in the University of Aberdeen by Royal Warrant, in the room of Professor John Theodore Cash, who has resigned.

THE BRITISH SCIENCE GUILD.—The annual meeting will be held on June 17th, at 4 P.M., at the Goldsmiths' Hall, Lord Sydenham presiding. Cards of invitation on application to the secretary at 199, Piccadilly, London, W.1.

THE ELSIE INGLIS UNIT.—This unit of the Scottish Women's Hospitals, which was transferred from the Macedonian front to Sarajevo in Bosnia last December, has now been recalled. Before leaving for home all the members of the hospital staff received the Serbian gold medal for meritorious service. The office of the London Committee of the Scottish Women's Hospitals at 66, Victoria-street, S.W., was closed on May 31st.

THE Ingleby Lecture of the University of Birmingham will be delivered at 4 P.M. on Wednesday, June 11th, in the Medical Lecture Theatre of the University, by Dr. Walter R. Jordan, senior physician to the Children's Hospital, Birmingham, the subject being Fibrositis, Rheumatism, and Rheumatoid Arthritis in Childhood.

ORTHOPÆDIC CONFERENCE IN LIVERPOOL.—A meeting of the British Orthopædic Association was opened at Liverpool on May 30th under the presidency of Sir Robert Jones, and was attended by representative surgeons from all parts of the country. Papers were read by Mr. Naughton Dunn (Birmingham), Mr. Muirhead Little (London), and others. On Monday a visit was paid to the Alder Hey Military Hospital.

LONDON DERMATOLOGICAL SOCIETY.—The annual meeting of the society will be held at St. John's Hospital, 49, Leicester-square, W.C., on Tuesday, June 17th, at 4.15 P.M., when Dr. S. P. Sunderland will read a paper entitled "The Baths of Old London." An exhibition will follow of cases of rare and interesting skin diseases.

ROYAL SANITARY INSTITUTE.—A congress of the Royal Sanitary Institute will be held at Newcastle-on-Tyne from July 28th to August 2nd, under the presidency of the Duke of Northumberland. Professor G. Sims Woodhead will preside over the section of sanitary science and preventive medicine, Sir Leslie Mackenzie over that of the hygiene of maternity and child welfare, and Sir Thomas Oliver over the section of industrial hygiene. Among the conferences to be held in connexion with the meeting will be one of medical officers of health, to be presided over by Professor H. R. Kenwood. The lecture to the congress on Marine Hygiene will be delivered by Sir Robert Hill, R.N., and the popular lecture on the Heritage of Health by Sir Robert Philip.

ROYAL INSTITUTE OF PUBLIC HEALTH: ANNUAL CONFERENCE.—As we have already announced, the annual conference of this institute will be held from Wednesday, June 25th, to Saturday, June 28th inclusive, at the Mansion House and Guildhall of London under the Presidency of the Lord Mayor. The conference will be devoted to a consideration of problems of reconstruction in relation to public health, and the following, among others, will deliver addresses:—

On the Work of the Ministry of Health (chairman, Professor W. R. Smith): Sir H. Kingsley Wood, M.P., Dr. F. E. Fremantle, and Lady Barrett, M.D.

Prevention of Venereal Disease (chairman, Lord Sydenham of Combe): Professor J. G. Adami, Sir Malcolm Morris, and Dr. Mary Scharlieb.

Housing in Relation to National Health (chairman, Sir Aston Webb): Dr. R. W. Hope, Professor S. D. Adshead, and Alderman Neville Chamberlain.

Maternity and Child Welfare (chairman, Mrs. Lloyd George): Sir Francis H. Champneys, Lady Leslie Mackenzie, and Mr. A. Carless.

The Tuberculosis Problem Under War Conditions (chairman, Sir William Osler): Dr. H. Hyslop Thomson, Dr. Nathan Raw, M.P., Dr. N. D. Bardswell.

A large number of prominent medical and public men and women have promised to take part in the discussions. Further particulars may be obtained from the honorary secretaries, the Royal Institute of Public Health, 37, Russell-square, London, W.C.1.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

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TUESDAY, MAY 27TH.

THE address delivered by the President was reported in last week's issue of THE LANCET. At its conclusion Sir DONALD MACALISTER stated that the inquiries to be held this session into charges made against medical practitioners presented novel features, on which the advice of the Council's legal advisers would probably be desired. He then added:—

In one painful case of trial for murder we are authoritatively advised that the special verdict of the jury, "guilty, but insane," does not in law imply that the practitioner charged has been "convicted in England ..... of any felony." The Council is therefore not free to take up a charge against this practitioner, or to direct the Registrar to erase his name from the Register, as if it were a case of conviction in terms of Section 29 of the Medical Act, 1858.

The report of the Executive Committee dealing with the Ministry of Health Bill, 1919, was received and approved. The action of the Committee on which this report was based has already been sufficiently noticed in THE LANCET of March 1st (p. 351).

The Case of Isaac Bernard Barclay.

The Council proceeded to the consideration, adjourned from Nov. 28th, 1918 (see THE LANCET, Dec. 7th, p. 798), of the case of Isaac Bernard Barclay. Documents and evidence had been sent to members. At the conclusion of the case the President announced the decision of the Council as follows:—

You have been found guilty by the Council, after careful inquiry, of the facts alleged against you in the notice of inquiry—viz., of having knowingly and falsely stated in your applications for an appointment under the Derbyshire County Council that you had held certain resident appointments, and of knowingly falsifying a printed copy of a testimonial in support of the application in a material particular to your own advantage.

The gravity of that finding I need not impress on you. But having regard to your comparative youth and to your obvious failure to appreciate the importance of strict truthfulness in matters relating to your profession, the Council has suspended its judgment on you for one year. It will require you, however, as a condition imposed upon you, to attend at the next session of the Council in May, 1919, and there to produce evidence as to your character and conduct in the interval, particularly in respect of truthfulness; and the Council will, if the case is not sooner determined, require you to appear before it in November, 1919, at its regular session, for judgment.

Before those dates you will be required to send to the Registrar of the Council the names of some of your professional brethren who may be willing upon written application from the Registrar to testify, by letter addressed to him for the use of the Council, as to your character and conduct in the interval.

Mr. Barclay attended, accompanied by his counsel. The Registrar having read the charge, and the decision of the Council in November, the Legal Assessor read certificates as to Mr. Barclay's character, which had been furnished to the Registrar by Mr. R. E. Nix, of Chatteris, Mr. Thomas Campbell, of Somersham, and Mr. Cecil E. Stephens, M.D., of Doddington, registered medical practitioners. After deliberation *in camerâ*, the PRESIDENT announced the decision of the Council as follows:—

I have to inform you that the Council does not see fit to direct the Registrar to erase your name from the Medical Register, and the case is accordingly at an end.

WEDNESDAY, MAY 28TH, TO FRIDAY, MAY 30TH.

The whole of these three days were occupied with the hearing of penal cases.

The Case of Nathaniel Osborne McConnell.

The Council considered the case of Nathaniel Osborne McConnell, registered as of 113, North-street, Belfast, M.B., B.S., 1891, R.U. Irel., L.A.H. Dubl., 1899, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you were at the Belfast Assizes on March 24th, 1919, convicted of feloniously, wilfully, and of malice aforethought killing and murdering one Mary Jane Reid and were sentenced to be hanged, which sentence was subsequently commuted to penal servitude for life.

Mr. McConnell attended, unaccompanied by counsel or solicitor.

The Council's Solicitor read the charge and laid the facts before the Council. He read a copy of the certificate of conviction which he put in.

The Legal Assessor informed Mr. McConnell of the Council's procedure in cases of conviction.

Mr. MCCONNELL then addressed the Council on his own behalf.

After deliberation *in camerâ*, the PRESIDENT announced the judgment of the Council as follows:—

I have to announce the decision of the Council that Nathaniel Osborne McConnell having been proved to have been convicted of the felony alleged against him in the notice of inquiry, the Registrar has been directed to erase his name from the Medical Register.

The Case of Hugh Mowat.

The Council considered the case of Hugh Mowat, registered as of 116, Salisbury-road, Everton, Liverpool, M.B., C.M., 1892, U. Aberd., who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you were convicted of the following misdemeanours, viz.: On April 29th, 1913, at the City Police-court, Liverpool, of being drunk and disorderly for which you were fined 5*s.* and 3*s.* 6*d.* costs. On March 12th, 1918, at the City Police-court, Liverpool, of being drunk and incapable, for which you were fined 10*s.* And, further, that on Nov. 12th, 1918, while holding a commission as temporary lieutenant in the Royal Army Medical Corps, you were by a general court-martial held at Prees Heath found guilty when on active service of drunkenness, in that you at Oswestry on Oct. 31st, 1918, when on duty as orderly medical officer at the Military Hospital, Oswestry, were drunk and were sentenced to be dismissed from his Majesty's service.

Mr. Mowat attended unaccompanied by counsel or solicitor.

The Council's Solicitor read the notice and laid the facts before the Council. He put in the certificates of conviction and a copy of the notes of the proceedings at the court-martial.

Mr. MOWAT give evidence on his own behalf and answered questions put to him through the chair by members of the Council. He did not desire to address the Council on his own behalf.

After deliberation *in camerâ*, the PRESIDENT announced the decision of the Council as follows:—

I have to tell you that the convictions alleged against you in the Notice have been proved to the satisfaction of the Council. These convictions indicate a habit which may be not only dangerous to your patients but discreditable to your profession. In order to give you an opportunity of reconsidering your attitude in this matter the Council has postponed judgment on the convictions proved against you till the November session. Before that date you will be required to send to the Registrar of the Council the names of some of your professional brethren who may be willing upon written application from the Registrar to testify, by letter addressed to him for the use of the Council, as to your character and conduct in the intervals. You will receive in due course a formal written intimation of what I have just announced to you, and the intimation will specify the date to which I have referred, when you should be present, and should understand that in the event of any further conviction for a similar offence the Council may instruct the Registrar to erase your name from the Medical Register.

The Case of Robinson Ruddock Coyle.

The Council considered the case of Robinson Ruddock Coyle, registered as of 36, Berkeley-terrace, Glasgow, M.B., C.M., 1892, U.Glasg., who had been summoned to appear before the Council on the following charge.

That being a registered medical practitioner you, with the object of procuring for your nephew, James Allan (not being a registered medical practitioner) the diplomas of a deceased practitioner of the same name, and thereby enabling the said James Allan to pass himself off as a registered medical practitioner, in or about the month of October, 1902, wrote and/or signed and addressed a letter to the parents or relatives of such deceased practitioner offering to purchase his diplomas. And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Documents and evidence had been sent to members.

Mr. Coyle attended, accompanied by counsel. The Council's solicitor laid the facts of the case before the Council. It appeared that the letter offering to purchase the diplomas of the deceased practitioner for £5 was written 17 years ago. It was typed. At first Mr. Coyle was unwilling to recognise his signature, but after the evidence of a handwriting expert had been given he admitted it, but declared he had no recollection of having signed such a typewritten letter. Inspector A. Helden, of the Criminal Investigation Department, Scotland Yard, detailed what took place at an interview with Mr. Coyle when he told him what had been discovered. Mr. Coyle did not agree to notes of the interview being taken and refused to sign a statement as to the interview.

Inspector A. Helden was examined as to the truth of his statement.

Mr. TRAVERS HUMPHREYS addressed the Council on behalf of Mr. Coyle.

After deliberation *in camerâ*, the PRESIDENT announced the judgment of the Council as follows:—

I have to announce to you that the Council does not see fit to direct the Registrar to erase your name from the Medical Register.

The Case of William Herbert Fawcett.

The Council considered the case of William Herbert Fawcett, registered as of Old Studley, Wimborne-road, Bournemouth, L. 1889, M. 1906, R.C.P. Edin., L. 1889, F. 1898, R.C.S. Edin., L.F.P.S. Glasg. 1889, D.P.H.R.C.P.S. Eng. 1893, who had been summoned to appear before the Council on the following charge:—

That being a registered medical practitioner you, in the months of February, March, and April, 1917, whilst attending professionally your patient, Mrs. Clara Jane Barlow (who died on Sept. 8th, 1917) at Bournemouth, and in conjunction with one Katie Wearham, nurse companion to the said Clara Jane Barlow, improperly used undue influence upon the said Clara Jane Barlow to make and execute a transfer to yourself of £1000 National War Loan Stock, and to make and execute a will dated April 30th, 1917, of which one Clement John Haydon and you were appointed executors, under which you and the said Katie Wearham benefited to the extent of a pecuniary legacy of £1500 to each of you and by which you and the said Katie Wearham were made equal devisees and legatees of the residuary estate of the said Clara Jane Barlow.

And in respect whereof you have been under the censure of a judicial authority—namely, the Honourable Mr. Justice Horridge, in the trial of an action of your co-executor and yourself against the Reverend Richard Henry Pring in the Probate Division of the High Court of Justice on Nov. 15th, 1918 (in which it was sought to have the said will established) and also of the Court of Appeal on March 17th, 1919, on appeal from the judgment of the said Mr. Justice Horridge.

And that in relation thereto you have been guilty of infamous conduct in a professional respect.

Documents and evidence had been sent to members.

Mr. Fawcett attended, accompanied by his counsel, Mr. Cotes Preedy.

Mr. HARPER, the Council's Solicitor, proceeded to open the case. The judges, he said, had in mind the legal definition of undue influence, but that did not complete the matter from this Council's standpoint, which was that of determining on the code of professional honour. In 1905, owing to the lady's mental condition, Dr. Hyslop was consulted and found her to be suffering from melancholia, but without suicidal tendency. He considered that she was unusually influenceable. On the advice of Dr. Hyslop the Rev. Richard H. Pring acted for her under a power of attorney for about a year. Though Mrs. Barlow's income was about £1700 per annum, she was constantly complaining of being hard up. In 1908 she went to Bournemouth and began to consult Mr. Fawcett; in 1912 she made a will, and in July, 1914, a second will, appointing the Rev. R. H. Pring executor, giving the residuary estate to Mr. and Mrs. Pring or their children. In February, 1917, she was wishing to make a change of nurse-companion, and Miss Wearham was engaged. Mr. Harper said it appeared quite clear that Miss Wearham exerted undue influence, and the question was whether Mr. Fawcett shared in that. Miss Wearham was not a trained nurse, but she had acted in a good many cases. By one patient, a wealthy man, she was presented with £1000 before he died. Her next patient, a poor man with no relatives, whom she attended for six months, left her £500 by his will. Mr. Harper proceeded to read evidence showing that visitors had been kept away from Mrs. Barlow, servants dismissed, and Mrs. Barlow's jewellery withdrawn from the bank by Miss Wearham.

Dr. L. A. WEATHERLY was called and examined by Mr. Harper. He said that he was asked to see Mrs. Barlow as she was about to make a new will. He examined her alone, and immediately afterwards made full notes of the interview, from which he read in giving his evidence. Later he had an interview with Mr. Fawcett, during which he commented on the fact that Miss Wearham was receiving a salary of £240 per annum for acting as nurse-companion, and pointing out the inferences liable to be drawn from the circumstances.

The Rev. H. R. PRING was then called and examined. He spoke of the change of mind towards him manifested by Mrs. Barlow at the time referred to in this case. He entered a caveat as he thought there was something wrong. It was not until after he had done this that he learned what were the contents of the will of 1914. Mr. Fawcett became annoyed when witness mentioned the power of attorney, and his attitude towards Mr. Pring had been hostile from that time. He found that Mrs. Barlow was receiving only the letters which Miss Wearham chose to allow her to receive.

Mr. COTES-PREEDY, in his speech for the defence, reminded the Council that the issue was not whether the nurse-companion exerted undue influence, and no charge of conspiracy with Miss Wearham had been formulated against Mr. Fawcett. This was the class of case which should have been heard by a jury, and in the hearing before Mr. Justice Horridge he contended that there had been a grave miscarriage of justice.

He called Mr. HAYDON, who spoke of the £1000 which Mrs. Barlow wished to transfer to Mr. Fawcett, stating that he asked her many questions, and she was not only competent to fully appreciate what she contemplated doing, but was eager to carry it out. The reason she gave was that she had known Mr. Fawcett for some years, during which time he had been very kind and attentive to her.

Mr. FAWCETT was then called. He said he saw Mrs. Barlow in November, 1916, because of eye symptoms. At that time she had no nurse-companion. The only person he had refused access to Mrs. Barlow was a former nurse-companion, who acted upon her as an irritating influence. He had brought about a reconciliation in regard to others. He admitted he resented Dr. Weatherly's intervention and declared he was only agreeable to act in business matters for Mrs. Barlow in conjunction with the banker and the clergyman. After the judgment in the Appeal Court he returned the £1000 in war bonds.

The Council deliberated on the case *in camerâ* for three-quarters of an hour, when the President announced that the Council adjudged Mr. Fawcett to have been guilty of infamous conduct in a professional respect and directed the Registrar to erase his name from the Register.

SATURDAY, MAY 31ST.

Report by the Dental Education and Examination Committee.

Sir CHARLES TOMES (chairman of the committee) presented this report on the report of the Departmental Committee appointed by the Lord President of the Council to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists Act. The Council's committee state that the Departmental Committee's report was unanimous and had met with much professional and lay approval. The points to which special attention is directed are—

1. The proposal to meet the shortage of dentists by admitting to registration a number of persons now practising without due qualification, and the concomitant scheme for the future total prohibition of unregistered practice. 2. The future conditions governing registration. 3. The machinery proposed for examining individual claims to registration. 4. The custody of the Dentists' Register and its form. 5. The proposed new Statutory Board, under the Medical Council, for the control of the dental profession. 6. The representation of dentists upon the Medical Council. 7. The changes proposed in the curriculum. 8. The establishment of reciprocity of recognition in the case of foreign and colonial qualifications. 9. Proposals for the control of company practice. 10. The proposal to establish an annual licensing fee, and the disposal of the fund so formed.

In the report are also included schemes for the extension of school dental treatment, and the establishment on a large scale of public gratuitous dental service. The Committee did not view with approval the practice of pharmacists combining their work with that of dentistry, but thought they might be treated somewhat exceptionally. Such persons should be required to declare within five years which form of practice they proposed to follow, or go off the Register.

Sir Charles Tomes added that there was every hope that the report would be taken notice of by the Government, but immediate preoccupations stood in the way. Prohibition of practice, as distinct from prohibition of title, of unregistered persons had been adopted by a large number of our colonies and possessions, also by a number of foreign countries. Some colonies, having begun by copying the British prohibition of title, had made several emendations, always in the direction of prohibition of practice. In countries in which prohibition of unregistered practice was operative it was a success. Yet it was felt that practice by unregistered persons could not be prohibited unless sufficient registered and recognised dental practitioners could be found for the

needs of the population. At present the deaths of registered dentists were only slightly more than compensated for in number by fresh diplomats. He moved the adoption of the report.

Mr. HODSDON seconded.

The following recommendations were then discussed and approved in the form here set out:—

(1) "That the Council should express its approval of the main general principle of the report—viz., that the practice of dentistry by unregistered persons be totally prohibited. Conditionally on such prohibition being adopted, that certain unregistered persons engaged in practice prior to the publication of the report (February, 1919) who fulfil certain conditions laid down in the report should be admitted to registration."

(2) "That the Council should express the opinion that the five years of *bona-fide* practice should be subsequent to the attainment of 21 years of age, and that a corresponding limit as to age be applicable to those who have been in practice less than five years and who are to be subject to a test examination; and that a corresponding age-limit be required in the case of dental mechanics, for whom special provision is made in the report."

(3) "That the Council should express the opinion that a Panel of Examiners should be nominated by the dental licensing bodies, as they alone have experience of the conduct of examinations in dentistry. From this panel examiners should be selected by a constituted authority to conduct any examinations required or demanded."

(4) "That the Council approve the formation and proposed constitution of an *ad hoc* committee to conduct the inquiry into claims for initial registration."

On the next recommendation a good deal of discussion took place.

Sir CHARLES TOMES pointed out the similarity, to the casual observer of a plate, of the unregistered letters "I.D.S." to "L.D.S."

Dr. MACKAY thought the unregistered practitioner should be allowed to use the same title as the registered dentist, especially as the difference would not last long, and for that reason also he pleaded for a broad-minded standpoint.

Mr. BARLING and Sir FRANCIS CHAMPNEYS supported the plea. Ultimately the recommendation was passed as follows:—

(5) "That the Council should express the opinion that while the title 'Dentist' or 'Dental Practitioner' may be used by all those upon the Register, the restrictions suggested in the report as to the use of any other title whatever by those who are registered in respect of practice only should be enforced under penalty; and that the title of 'Surgeon Dentist' or 'Dental Surgeon' should be expressly reserved for those who possess a registrable license or Diploma in Dentistry or Dental Surgery."

There was a good deal of discussion also on the next recommendation as to a Statutory Board to control the dental profession. At present the Council's Dental Committee had to inquire into the facts in dental cases to be brought before the Council, and it was now sought to give to a Statutory Board the power to not only inquire into alleged breaches of the law or into conduct amounting to infamous conduct in a professional sense, but also to pronounce judgment. It also provided that the person concerned should have the right of appeal to the General Medical Council if the latter saw the need for it. The constitution proposed for such Board was three members of the Medical Council and five representatives to be elected by the dentists on the new Register, and three to be nominated by the Privy Council, two of these three to be laymen. The following was the eventual wording agreed to:—

(6) "That the Council approve the suggestion that a Statutory Board under the Council should be established for the control of the dental profession, the General Medical Council having the right to hear an appeal, should it think fit to do so."

(7) "That the Council is not in a position to give effect to its resolution until it is known what steps will be taken to give legislative effect to the recommendations of the Departmental Committee."

A further recommendation, that an annual licensing fee should be paid by registered dentists, was lost by 14 votes against 9, the numbers being checked by a name vote.

(8) "That the Council should express the opinion that a satisfactory dental curriculum can be framed on the basis of the suggestions set forth in the report."

Sir CHARLES TOMES explained that the broad issue was that the Departmental Committee recommended a nominal reduction in the length of the curriculum from four years to three, and in connexion therewith that the preliminary subjects, chemistry, physics and biology, should be relegated to secondary school life. This shortening was not felt to be in any way dangerous.

Dr. MACKAY thought the standard of knowledge on physics, chemistry, and biology should be higher than that usually required of a secondary school boy of 17 years.

Mr. HODSDON thought mechanical dentistry ought to be taken at a dental school.

(9) "That the Council take strong objection to the creation of a special class of 'managers' of dental companies, who would not be registered dentists."

The Dental Committee tried, Sir CHARLES TOMES explained, to get regulations prohibiting the practice of medicine and dentistry by limited liability companies, which were means of evading the law, but were not successful, as amendments introduced by a Select Committee of the House of Lords spoiled the Bill.

(10) "That the Council would welcome legislation for providing for reciprocity of recognition with the Dominions and foreign countries."

(11) "That the Council request the Lord President to afford it an opportunity of considering at an early stage any legislative proposals which the Government may contemplate for giving effect to the recommendations of the report."

Report from the Education Committee.

Dr. MACKAY gave an oral report from this committee. Before the war, he said, it had been practically decided that a cycle of inspections of examinations should be made; but he thought the immediate establishment of such now was not desirable. Most of the schools were still understaffed, and there were many vacant appointments to be filled. On the other hand, the schools were filled with emergency students, the teaching of whom was causing the staff great effort and was disorganising the normal school work. There had been only six replies received to the important letter of the Council to all licensing bodies on the subject of preventive medicine, and it was hoped the remaining replies would soon be received, as it was most desirable that the Council should begin the study of this very important subject, which dealt with the whole rearrangement of the curriculum. The committee had also dealt with applications from institutions carrying on preliminary examination subjects. There were three grades of matriculation examination. The first was represented by matriculation examinations of all the Universities of the Kingdom and those examinations which were accepted as their equivalent. The second was represented by the first schools of the Board of Education plus a pass with credit in English and mathematics, without compulsory inclusion of classics. Below this there was a considerable number of examinations in regard to which there was no good proof that they were of a sufficiently high standard. He hoped those responsible for these last-named examinations would seek to have them tested by a reliable authority, such as the Board of Education in England or the Government Education Boards in the various colonies and dependencies. If they were found to be on a level with the examinations already accepted, the problem to be dealt with by this Council would be very much simplified.

Dr. MCVAIL supported Dr. Mackay's remarks on the subject of the circular letter on preventive medicine, and hoped steps would be taken to make sure that the various bodies concerned were properly aware of the matter.

The report was agreed to.

Report from the Examination Committee.

Dr. NORMAN WALKER presented this report.

Sir ARTHUR CHANCE, in seconding, said he felt sure that the Dublin Apothecaries' Hall was doing its best, and he hoped the end of the debateable situation had been reached.

Dr. MAGENNIS said the report was very gratifying to him; he had always done his best to carry out the recommendations of the Council, and he hoped only the same restrictions would be imposed on Apothecaries' Hall as on the other licensing bodies. He thanked the Council for their support and courtesy.

The report was approved.

Report from the Examination Committee: Analysis of Tables.

Dr. NORMAN WALKER presented the report. Attention was specially directed to the following recommendation in the document.

"That every student should be required to attend a course of practical instruction in ophthalmology of not less than ten weeks' duration, and that no student should be admitted to the Final Examination unless he presents a certificate to the effect that he has attended such a course regularly, and that his work in connexion therewith has reached a satisfactory standard."

The committee felt, however, that to require the student to do as was required in the foregoing would not be wise, though the University of Edinburgh and other centres required evidence of satisfactory instruction in ophthalmology before the student was allowed to enter for the Final.

Sir JOHN MOORE, in seconding, agreed with the decision not to make ophthalmology a compulsory subject, though he appreciated its importance.

The report was approved.

Report of Public Health Committee.

Sir JOHN MOORE, in submitting this report, drew attention to the request by the Metropolitan Asylums Board that the number of attendances at hospitals for infectious diseases for the diplomas in public health should be reduced. The committee, however, were unable to recommend such reduction. Numerous applications from Army officers for the recognition of work done in the Army were considered and decided. It was felt that if concessions under the special war clauses were to be dealt with only every six months it would act as a hardship. Sir John Moore therefore dealt with cases of urgency in conjunction with the Registrar, and this arrangement was extended by the Council for a further six months.

The committee's recommendation in the following terms, which Sir JOHN MOORE asked should be taken as a matter of urgency, was also approved:—

"That it is advisable that all examinations conducted for the purpose of conferring the several registrable degrees, diplomas, or certificates in sanitary science, public health, or State medicine, specified in Table G, at page lxxv. of the Medical Register, should be inspected, and that it be remitted to the Executive Committee to consider and report upon the necessary arrangements for the inspection."

Report of the Pharmacopœia Committee.

Sir NORMAN MOORE submitted this report, which was chiefly concerned with the sale of copies of the work. It was approved.

Report of Dental Education and Examination Committee on Applications for Exceptional Registration.

Sir CHARLES TOMES presented this report. As some of the applications for registration presented conditions which had not previously arisen, legal opinion was sought on Sections 8, 9, and 10 of the Dentists Act, dealing with the conditions under which registration in the Colonial and Foreign lists of the Register can be granted. This opinion was that the Council had no power to register any person in the Colonial list unless he either was not domiciled in the United Kingdom or had practised for more than 10 years elsewhere than in the United Kingdom, and unless he "shows that he holds some recognised certificate granted in a British possession." Neither had the Council power to register a person in the Foreign list unless he is not a British subject or unless he has practised for more than 10 years elsewhere than in the United Kingdom, and has obtained a "recognised certificate" granted in a foreign country and still holds it. A difficulty arose in the case of some Canadian and other British subjects who had taken American degrees, but had not practised for ten years outside the United Kingdom, and, therefore, were not eligible for entry upon either the Colonial or Foreign lists.

The committee considered a Bill relating to registration in South Africa, which appeared to remove a difficulty, also two Acts relating to South Australia.

Reappointment of the General Registrar.

Colonel Norman King was unanimously reappointed General Registrar, and Mr. A. J. Cockington Assistant Registrar.

DEVON AND CORNWALL SANATORIUM FOR CONSUMPTIVES, DIDWORTHY.—The annual meeting of the friends of this institution was recently held. The report stated that 397 patients had been admitted, the largest number on record, the average period of treatment being 83 days. 179 patients were in the first stage, 188 in the second, and only 30 in the last stage. In 1911 21 per cent. of all the cases were in the third stage of the disease.

PRESENTATION TO SIR JAMES BARR.—On May 30th, in the Exchange-buildings, Liverpool, Sir James Barr was presented with a silver salver, bearing the following inscription:—

"Presented to Sir James Barr, M.D., F.R.C.P., by the Auxiliary Military Hospitals of West Lancashire in grateful recognition of the eminent and invaluable services rendered by him as county director during the Great War, 1914–19."

The presentation was made by Mr. Frank Tobin, who referred appreciatively to the personal qualities which had made Sir James Barr's holding of office widely acceptable.

THE SERVICES.

ARMY MEDICAL SERVICE.

Colonels retiring on retired pay: R. L. R. Macleod, C.B., N. C. Ferguson, C.M.G.

Temp. Cols. G. E. Gask, C.M.G. (Major, R.A.M.C., T.F.), and W. H. Willcox, C.B., C.M.G. (Captain, R.A.M.C., T.F.) relinquish their temporary commissions on re-posting.

ROYAL ARMY MEDICAL CORPS.

The undermentioned relinquish the acting rank of Colonel on re-posting: Lieut.-Col. and Bt. Col. R. S. Hannay; Lieut.-Cols. H. G. Martin, H. M. Morton; Major R. N. Woodley.

The undermentioned relinquish the acting rank of Lieutenant-Colonel on re-posting: Majors P. C. T. Davy, J. M. M. Crawford, R. C. Wilson; Capt. and Bt. Major F. T. Dowling; Capts. H. G. Monteith, F. C. Davidson, J. D. Bowie.

Temp. Lieut.-Col. J. W. Alexander (Lieutenant-Colonel, T.F. Res.) relinquishes his temporary commission on re-posting.

Major and Bt. Lieut.-Col. W. Benson to be acting Lieutenant-Colonel while specially employed.

The undermentioned relinquish the acting rank of Major on re-posting: Capts. R. A. Mansell, W. V. Corbett, J. la F. Lauder, J. K. Gaunt, Temp. Capts. V. D. C. Wakeford, B. Pickering, A. Felling, R. Kidd, A. Topping, A. R. Elliott, D. C. Taylor, T. H. Just, A. S. Wakely, J. R. Anderson, G. Clarke, R. S. Dewar, J. MacInnes.

Major R. N. Hunt to be acting Lieutenant-Colonel while commanding a Medical Unit.

Capt. (acting Major) A. G. Wells, D.S.O., relinquishes the acting rank of Lieutenant-Colonel and retains the acting rank of Major.

Captain G. F. Allison relinquishes the acting rank of Lieutenant-Colonel on re-posting.

R. B. Rutherford, late temporary Captain (acting Major) is granted the rank of Major.

A. G. Mossop, late temporary Captain, is granted the rank of Captain.

To be acting Majors: Capts. W. T. Graham, T. K. Boney; Temp. Capts. C. H. B. Booth, H. North, J. S. Williamson.

Temporary Captains relinquishing the acting rank of Major: A. G. Caldwell, J. McF. Grier, A. H. Thomas, J. L. Rankine, W. S. McGowan.

Temp. Capt. A. E. Atkinson to be acting Major whilst commanding troops in a Hospital Ship.

Lieutenants (temporary Captains) to be Captains: W. H. A. D. Sutton, W. D. Newland, L. S. C. Roche, C. L. Emmerson, F. A. R. Hacker.

Temporary Lieutenants to be temporary Captains: W. M. Johnston, J. C. Bell, D. B. Leitch, C. H. Aylen, E. R. Wheeler, T. J. Richardson, S. E. Murray, S. F. Boyle, J. J. Hughes, J. Anastasi, C. W. Somerville, J. Russell, A. Bremner.

L. B. Cane, Captain, R.A.M.C. (T.F.), to be temporary Lieutenant.

Officers relinquishing their commissions:—Temp. Lieut.-Col. T. E. Sandall. Temp. Lieut.-Cols. (on ceasing to serve with the Welsh Division Field Ambulance) retaining the rank of Colonel: J. E. H. Davies, R. H. Mills-Roberts. Temp. Majors retaining the rank of Major: B. H. Slater, A. Stodart-Walker, C. Noon. Temp. Capts. granted the rank of Lieutenant-Colonel: H. K. Wallace, J. R. C. Greenlees. Granted the rank of Major: C. E. Murphy, H. V. Leigh, J. I. P. Wilson, R. E. H. Leach, W. Ward-Smith, R. J. T. Thornhill, W. S. Stevenson, E. B. Sunderland, R. J. Vernon, J. M. Clements, A. W. H. Donaldson, H. W. Scawin, A. A. Miller, R. T. Worthington, G. L. Keynes, E. B. Smith, C. J. H. Sharp. Retaining the rank of Captain: O. A. J. N. Muriset, H. H. Weekes, A. E. Stevens, G. M. Simpson, G. W. Twigg, M. Stewart, J. A. H. Vanderwert, J. W. H. Boyd, E. D. McCrea, C. H. Hopwood, J. G. T. Thomas, C. G. Teall, W. C. Lodwidge, P. C. Litchfield, W. A. Shann, T. Warner, D. J. McRae, H. E. White, J. F. H. Stallman, M. Macleod, H. Pierce, H. Mackenzie, H. J. More, A. C. West, J. W. Thomas, P. Talbot, E. M. Mahon, R. M. Marshall, R. N. Salaman, W. B. Tannahill, W. E. Wallis, W. Wallace, A. Wilkin, J. H. Thompson, A. B. Sykes, E. R. Thompson, J. D. Ryan, W. H. Steele, A. M. M. Roberts, G. R. Rew, E. H. Rainey, R. B. Radcliffe, A. H. Rentoul, E. H. Roberts, M. S. Wood, J. K. Reid, T. R. Robertson, R. A. Shekleton, A. MacMillan, A. White, H. L. Messenger, H. D. McCall, W. R. Main, E. C. Rayner, A. S. Wakeley, W. H. Scott, J. B. Walker, G. S. Robertson, J. Thomarson, T. Jays, W. Stirling, D. C. Thomas, T. M. Sellar, W. W. Uttley, J. G. Thomson, E. P. Satchell, C. E. Jones-Phillipson, J. M. Smeaton, R. Richards, T. W. Sweetnam, J. K. Small, J. Scott, T. L. Llewellyn, E. Allan, R. Stephens, H. F. W. Adams, C. I. McLaren, T. H. Scott, G. C. Nielson, E. A. Pywell, W. O'Brien, G. C. Scantlebury, C. Averill, T. D. Graham, N. H. M. Burke, J. H. Jones, A. J. B. Leckie, Hon. L. H. Lindley, I. H. S. Hawes, P. Wood, H. G. Westropp, C. F. White, W. H. Sutcliffe, H. B. Scargill, C. W. Jenner, W. H. Brown, G. B. Thwaites, A. H. Smith, W. Sanderson, W. W. Wells, E. H. White, J. H. Drew, J. Wells, S. Upton, V. C. Montgomery, E. W. Sheaf, G. D. Shann, G. Young, J. Walker, A. J. Pirie, C. P. A. Stranaghan, G. W. Sudlow, R. D. Clayton, A. C. Strain, S. Nix, W. Tregenza, R. A. S. Sunderland, G. D. Watkins, S. L. O. Young, J. R. Anderson, P. C. E. d'E. Wheeler, D. C. Suttie, H. K. Waller, D. M. Stone, R. L. Worsley, H. L. W. Wemyss, H. H. Whaite, J. A. West, D. Thomson, A. Sandison, W. J. B. Selkirk, J. J. Walshe, F. H. W. Brewer, C. H. Bannerman, J. H. Bogan, G. T. Birks, H. Brayshaw, H. B. Billups, C. Gibson, W. Bainbridge, E. Bromley, H. J. Holle, H. R. Ford, W. T. Collier, M. H. Cane, A. T. Cunningham, R. H. Hadfield, R. W. H. Meredith, A. C. Price, J. Pender, G. F. P. Heathcote, C. B. Gervis, C. H. Gunson, W. Eardley, W. Cunningham.

Temporary Lieutenants retaining the rank of Lieutenant: L. N. H. Biggs, J. D. E. Williams, G. Ap Thomas, W. H. M. Smith, T. T. Smith, T. Wallace, B. Morrison.

Canadian Army Medical Corps.

Temp. Lieut.-Col. T. J. F. Murphy to be acting Colonel while employed as A.D.M.S. Canadian Corps Camp, Bramshott and Witley Sections.

Temp. Major (acting Lieut.-Col.) G. H. R. Gibson relinquishes the acting rank of Lieutenant-Colonel on ceasing to command Canadian Officers Convalescent Hospital, Matlock Bath, and retires in the British Isles.

Temp. Capt. (now temp. Major) W. H. Tytler is seconded for duty with the War Office.

Temp. Major A. H. Taylor to be acting Lieutenant-Colonel while O.C. Troops, H.M.A.T. *Essequibo*.

Temp. Capt. G. H. Jardine to be temporary Major.

Temp. Capt. D. A. MacLeod to be acting Major while employed with No. 7 Canadian Stationary Hospital.

Temp. Capt. P. J. S. Bird to be acting Major while employed at C.C.H., Epsom.

Temporary Lieutenants to be temporary Captains: J. R. L. Eede, D. W. McKay, A. R Newsam, J. W. McKenzie, G. J. McMurtry, V. Carlisle, G. A. Cheeseman, A. H. Greenwood, C. E. M. Tuohy, J. P. Fawcett, J. M. Donnelly, H. J. Robillard, T. D. McGregor, I. Y. Patrick, R. B. Kennedy, E. W. Nettleton, J. G. Strachan, H. W. Street, W. H. Batten, C. C. Brown, B. Cohen, J. C. Copp, E. G. Coulson, C. A. Findlay, W. Harris, J. W. Leach, D. M. Low, J. D. MacDonald, E. C. Riseborough, J. M. Robertson, L. Wagner, W. S. Quint, J. W. Sinclair.

South African Medical Corps.

Temp. Col. P. G. Stock (Colonel, South African M.C.), relinquishes his temporary commission on re-posting.

SPECIAL RESERVE OF OFFICERS.

Capt. R. T. C. Robertson relinquishes the rank of Lieutenant-Colonel on re-posting.

Capt. A. B. Mitchell relinquishes the acting rank of Major on re-posting.

Capt. J. A. L. Wilson relinquishes the acting rank of Major.

Lieutenants to be Captains: J. S. Mann, G. E. Tilsley, T. A. Butcher, J. C. Morris, W. A. Jackman, R. W. C. Ball, C. W. Hayward, E. F. Rabey, R. Hilliard, E. S. Rose, E. B. Verney.

Lieut. T. Colley relinquishes his commission and retains the rank of Lieutenant.

TERRITORIAL FORCE.

Lieut.-Col. (acting Colonel) W. R. Matthews relinquishes his acting rank on vacating the appointment of Assistant Director of Medical Services.

Maj. W. K. Paull relinquishes his commission and retains the rank of Major.

Capt. (Bt. Maj.) (acting Lieut.-Col.) D. W. Boswell relinquishes his acting rank on ceasing to be specially employed.

Capt. (Bt. Maj.) (acting Major) A. A. Jubb relinquishes his acting rank on ceasing to be specially employed.

Capts. (acting Majs.) F. P. Gibson and A. Ricketts relinquish their acting rank on ceasing to be specially employed.

Capt. A. E. Mackenzie relinquishes his commission and retains the rank of Captain.

1st London General Hospital: Major G. E. Gask is restored to the establishment on ceasing to hold a temporary commission in the Army Medical Service.

3rd Southern General Hospital: Major E. Mallam and Capt. J. F. Robinson are seconded for service with a Special Military Surgical Hospital.

Sanitary Service: Capt. (acting Maj.) L. R. Tosswill relinquishes his acting rank on vacating the appointment of Deputy Assistant Director of Medical Services.

4th Southern General Hospital: Capt. (Bt. Major) E. G. Smith is seconded for service at the Military Hospital, Devonport; Capt. E. R. Clarke is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—Capts. W. B. Dove and C. C. Fitzgerald, R.A.M.C., are transferred to the unemployed list.

Dental Branch.—Lieut. R. S. H. Drabble is transferred to the unemployed list.

TERRITORIAL DECORATION.

The King has conferred the Territorial Decoration upon the undermentioned officers of the Territorial Force:—

Royal Army Medical Corps.

Lieut.-Col. (Bt.-Col.) J. W. Smith; Lieut.-Cols. H. H. C. Dent, E. L. Gowlland; Lieut.-Cols. (acting Cols.) W. R. Matthews, E. C. Montgomery-Smith; Majors J. Hamilton, J. Lithgow, J. Livingstone, G. R. Wattleworth, J. F. F. Par, G. Ashton, A. Elliot, J. M. Duncan, G. R. Livingstone, G. F. Whyte (acting Lieut.-Col.), W. H. Galloway, W. B. Armstrong, W. L. Bentley; Capts. C. Roberts, H. H. E Scatliff, H. H. B. Cunningham (acting Lieut.-Col.), G. H. L. Hammerton (acting Lieut.-Col.)

East Lancs. Field Ambulance: Lieut.-Cols. H. G. Parker, J. R. Whait, F. E. A. Webb; Majors D. A. Hughes and J. P. Ekins (quartermaster).

Territorial Force Reserve.

Lieut.-Col. A. J. Collis, attached R.A.M.C.; Major H. C. Colman, attached R.A.M.C.

INDIA AND THE INDIAN MEDICAL SERVICE.

Temp. Lieuts. G. E. Paul and B. Sahai to be Temporary Captains.

Major R. H. Roberts, on return from military duty, has been posted to Madras. The services of Major C. L. Dunn have been placed at the disposal of the Government of the United Provinces. Dr. K. S. Caldwell, professor of chemistry in the Patna College, has been appointed acting Principal. Lieut.-Col. Newman, C.I.E., civil Surgeon, Dacca, has proceeded on six months' furlough. Capt. D. J. McLaren, R.A.M.C., has been appointed to hold medical charge of the Civil Station of Barrackpore, vice Capt. C. C. Harrison, R.A.M.C. Capt. V. B. Green-Armytage has been appointed to be First Resident Surgeon, Presidency General Hospital. He has also been appointed to hold until further orders charge of the duties of the Second Resident Surgeon of the Hospital in addition to his own. Major Norman White has resigned his seat on the Simla Municipal Committee; Lieut.-Col. Needham has replaced him.

Colonel E. B. Hartley, V.C. (deceased), Major-General Sir N. R. Howse, V.C., and Major-General Sir Robert Jones have been promoted to be Knights of Grace of the Grand Priory of the Order of the Hospital of St. John of Jerusalem in England.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

THE Royal Assent was given on Tuesday evening to the Ministry of Health Bill, to the Scottish Board of Health Bill, and to the Local Government (Ireland) Bill.

HOUSE OF COMMONS.

MONDAY, JUNE 2ND.

Ministry of Health Bill.

THE House considered the Lords' reasons for insisting on their amendments to which the Commons had disagreed with reference to the Ministry of Health Bill.

Mr. BONAR LAW moved that the House agree with the Lords' amendment reducing the number of Parliamentary Secretaries to the Ministry from two to one. This amendment, he explained, was carried in the House of Lords, and when it came up for discussion in the House of Commons it was rejected by 107 votes to 25. It was again considered in the House of Lords and persisted in. In taking that course Mr. Bonar Law said the majority of the House of Lords took what might have been a very grave responsibility by putting the Government in the dilemma that either the Bill, which was earnestly desired by the country, and which had won the approval of both Houses, should be lost, or that the House of Commons must give way to the judgment of the House of Lords. He was sorry that the majority of the House of Lords had taken the course they had. He thought that this was almost a new claim on their part. As Leader of the House of Commons he thought it was his duty to say that in a case of that kind it was the House of Lords and not the House of Commons that should give way. But the Government could not afford to lose the Bill. The position simply meant that the Minister of Health would be put to inconvenience. It was possible that the matter might be put right later on. They were living in serious times, and anything approaching a conflict between the two Houses would be grave indeed.

Captain WEDGWOOD BENN said that the House of Commons, which, under the direction of the present Government, had shown no inclination towards economy, had left it to the House of Lords to force an economy which he believed was desired in the country.

The amendment was agreed to.

Scottish Board of Health Bill.

The Lords' amendment to the Scottish Board of Health Bill was considered and agreed to.

Pool for Insurance Practitioners.

Sir PHILIP MAGNUS asked the Secretary to the Local Government Board, as representing the National Health Commissioners, if he would state what was the amount of the pool for 1918 for medical attendance of invalided seamen, marines, and soldiers; and what amount, if any, remained in the pool on Dec. 31st last after payment had been made for such attendance.—Mr. PRATT (Lord of the Treasury) replied: The sum available from insurance funds for the calendar year 1918 in respect of the medical attendance on invalided men coming under special arrangement was approximately £78,000. So far from there being a balance, as suggested in the second part of the question, the quarterly sums received on account by the practitioners in respect of such attendance substantially exceeded that amount, involving supplementary payments from the Exchequer in accordance with the scheme.

War Gratuities to Nurses.

Viscount WOLMER asked the Secretary for War whether a war gratuity had been granted to the nursing members of the Voluntary Aid Detachment, while no gratuity had been given to the members of the General Service Section, Voluntary Aid Detachment; and, if so, would he state the ground on which this distinction had been made.—Mr. FORSTER (Financial Secretary to the War Office) replied: A gratuity has been granted to the Nursing Section, Voluntary Aid Detachments, in direct military employment, as to other nursing staffs in Army hospitals. The general section system are dealt with on the same lines as the Queen Mary's Army Auxiliary Corps, receiving a furlough on discharge with full pay.

Plague in Central and Eastern Europe.

Lieutenant-Commander KENWORTHY asked the Prime Minister if His Majesty's Government were aware of the danger of an outbreak of plague in Eastern and Central Europe this coming summer due to the blockade and civil war, and what steps of a precautionary measure were being taken to prevent its spread to this country.—Dr. ADDISON

(President of the Local Government Board) replied: The precautions for preventing the introduction and spread of plague in this country are prescribed in General Regulations made by the Local Government Board in 1907. I am not aware of any special danger of an outbreak of plague in the regions referred to, but the precautions taken by the port sanitary authorities of this country under the supervision of the Medical Department of the Local Government Board are being carefully carried out, and strict watch is kept on vessels coming from plague-infected countries. These measures have proved very successful in the past in protecting the country from plague.—Lieutenant-Commander KENWORTHY: Is the right honourable gentleman aware that the medical profession are very alarmed at the conditions which are likely to prevail next summer, and that the ordinary means to prevent plague will not safeguard us unless exceptional means are taken?—Dr. ADDISON: I am well aware of the alarm to which the honourable gentleman refers, and, as a result, a joint body representing the different services has been at work on this subject for several weeks past.

Captain W. BENN: Can the right honourable gentleman say whether the blockade excludes us from sending drugs to these countries?—Dr. ADDISON: I cannot answer that question without notice.

TUESDAY, JUNE 3RD.

Medical Officer to the Board of Customs.

Mr. TYSON WILSON asked the Secretary to the Treasury whether the position of medical officer to the Board of Customs and Excise, which had been vacant for three months, had been filled; and, if not, would he state the cause of the delay in filling that important position?—Mr. STANLEY BALDWIN replied: I am informed that this post has now been vacant for two and a half months. It is necessary that the holder of it should possess special qualifications, and careful consideration is therefore being given to the selection of the new appointee, whose name will, I hope, be announced shortly. In the meantime the duties of the post are being efficiently performed by a locum tenens.

Appointments.

BEDDOW, JOSIAH, M.R.C.S., L.S.A., has been appointed Medical Officer for the Brampford Speke District, Devon.

DAVIS, OLIVER CHARLES MINTY, D.Sc. Lond. & Bristol, M.B., Ch.B. Bristol, Honorary Out-patient Physician to the Bristol Royal Hospital for Sick Children and Women.

HANNA, GEORGE HENRY, M.D., Ch.B. Edin., Public Vaccinator for Exmouth.

MARTIN, BRENDAN, L.R.C.P. & S., L.M Irel., Medical Officer to the No. 1 District of the Bridgwater (Somerset) Union.

PIM, ARTHUR AUGUSTUS, F.R.C.S. Edin., L.F.P.S. Glasg., Medical Officer of Health for the Bridport Rural District.

ROPER, FRANK ARTHUR, M.D., B.C. Cantab., Examining Medical Officer to the Dev·n Constabulary.

STEELE-PERKINS, DUNCOMBE STEELE, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Medical Officer to the Honiton Board of Guardians.

Certifying Surgeons under the Factory and Workshop Acts:—WARREN, D. W., M.B., Ch.B. Edin., Braemar district of the county of Aberdeen; MCKAIL, D., M.D. Glasg., the Glasgow, South-East, District of the county of Lanark; GIBSON, A., M.B., Ch.B. Edin., Tollcross district of the county of Lanark.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen University.—Lecturer in Pathology. £700.

Barry Urban District Council, Accident and Surgical Hospital.—S. £600.

Bethlem Royal Hospital, Lambeth-road, S.E.—Two Hon. Neurologists.

Birkenhead and Wirral Childrens' Hospital, Woodchurch-road.—H.S. £150.

Birkenhead Borough Hospital.—Dent. S.

Birmingham University.—Demonstrator of Anatomy. £250.

Bournemouth, Royal Victoria and West Hants Hospital.—Res. H.S. £200.

Bristol General Hospital.—H.P. £175.

Bristol University.—Professor of Physiology. £800.

Cape Town University.—Profs. of Med., Surg., Obstet., and Gynæc. £1250 each.

Cardiff, King Edward VII.'s Hospital.—Hon. S.

Cardiff, University College of South Wales and Monmouthshire.—Lecturer in Physiological Chemistry and Asst. Lecturer and Demonstrator in Physiology.

Carmarthen Mental Hospital.—Second Asst. M.O. £250.

Chesterfield and North Derbyshire Royal Hospital.—Jun. H.S. £250.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—Res. M.O. £250.

Dartford, Kent, City of London Mental Hospital.—Second Asst. M.O. £250.

Doncaster, Royal Infirmary and Dispensary.—Asst. Female H.S.

East Sussex County Council Education Committee.—Jun. Asst. School M.O. £400.

Glasgow, Anderson College of Medicine, Dumbarton-road.—Appointments to Chairs of Anatomy, Chemistry, and Physiology.

Gloucestershire Royal Infirmary and Eye Institution.—H.S. and Asst. H.S. £200 and £175.

Hongkong University.—Professor of Pathology. £600.

Huddersfield, Bradley Wood Sanatorium for Pulmonary and Surgical Tuberculosis.—Res. M.O. £350.

Ipswich, County of East Suffolk.—Asst. to County M.O.H. £450.

Italian Hospital, Queen-square, London, W.C.—Hon. S.

King Edward VII. Sanatorium, Midhurst, Sussex.—Med. Supt. £800. Also Pathologist, £400.

King's Lynn, West Norfolk and Lynn Hospital.—H.S. £150.

Liverpool Education Committee.—Two Asst. Sch. M.O.'s £350.

Liverpool Infirmary for Children.—Two Res. H.P.'s and Res. H.S. £90.

Liverpool, Stanley Hospital.—H.P.

London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. £200.

Maidstone, Lenham Sanatorium.—Med. Supt. £600.

Manchester, St. Mary's Hospitals for Women and Children.—Two H.S.'s. £100.

Manchester University.—Lecturer on Physiology. £500. Demonstrator. £300. Also Lectureship in Vaccination.

Manchester, Victoria Memorial Jewish Hospital, Cheetham.—Res. M.O. £150.

Middlesbrough, North Ormesby Hospital.—H S. £250.

Miller General Hospital, Greenwich-road, S.E.—Hon. S. Also Hon. Ophthal. S.

Norwich, Norfolk and Norwich Hospital.—H.S. £200.

Oxford, Radcliffe Infirmary and County Hospital.—H.P. £200.

Oxford University, Department of Human Anatomy.—Demonstrator. £400.

Perth District Asylum, Murthly.—Asst. M.O. £300.

Plymouth, South Devon and East Cornwall Hospital.—H.S. £200.

Portsmouth Royal Hospital.—H.S. £150.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Dist. Res. M.O. £80.

Reading, Royal Berkshire Hospital.—Sen. Res. M.O. £350.

Renfrew County Council.—County M.O. £900.

Royal Chest Hospital, City-road, E.C., Tuberculosis Dispensary.—Asst. M.O. £350.

Royal Waterloo Hospital for Children and Women, S.E.—Second Female Res. M.O. £150. Also Hon. Physician and Radiographer.

St. Thomas's Hospital.—Visiting Anæsth.

Serbic Hospital.—S.

Sheffield Royal Hospital.—H.S. £125. Also Asst. H.P. £120.

Sheffield Royal Infirmary.—H.S. £150. Also H.S. for Ear, Nose, and Throat. £150.

Southampton County Borough Isolation Hospital.—Res. M.O £400.

Southampton, Free Eye Hospital.—Hon. Consulting Physician and Hon. Consulting Surgeon.

South Shields County Borough.—Asst. M.O. £500.

Sudan Medical Department.—Med. Inspector. £600.

Tottenham Education Committee.—School Dentist. £350.

Trowbridge, Wilts, Wilts County Council.—Oculist and Asst. School M.O. £450.

University College Hospital, Gower-street, W.C.—Hon. Anæsth.

Warwickshire County Council.—Asst. County M.O.H. £500.

York County Hospital.—Pathologist. £500.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Malling and at Letterkenny.

Births, Marriages, and Deaths.

BIRTHS.

BROWN.—On May 27th, at Highcroft, Minchinhampton, Glos., the wife of Alfred Brown, M.D., of a daughter.

DEWAR.—On May 29th (Ascension Day), at The Nook, Tuxford, Notts, the wife of Dr. Allan Dewar, late Captain, R.A.M.C., of a son.

VALE BAGSHAWE.—On May 25th, at Limasol, Cyprus, the wife of Lieutenant-Colonel H. Vale Bagshawe, D.S.O., R.A.M.C., of a son.

WALKER.—On June 1st, at St. John's Wood, the wife of L. A. Walker, M.D., Captain, R.A.F., of a son.

MARRIAGES.

ACKLAND—MARLOW.—On May 18th, at St. Dionis Church, Kensington, J. G. Ackland, Captain, R.A.M.C., to Dorothy daughter of Mrs. Marlow, of Arundell-mansions, Kensington, W.

COX—HOWARTH.—At Stand Church, Whitefield, Lancashire, on June 4th, 1919, by the Rev. J. H. Hopkinson, M.A. Camb., of Holy Trinity, Colne, George Lissant Cox, M.A., M.D. Camb., of Liverpool and 45, West-cliff, Preston, elder son of Mr. and Mrs. Geo. H. Cox, of Liverpool and Underfell, Bowness-on-Windermere, to Marguerita (Rita) Howarth, M.A. Manch., elder daughter of Mr. and Mrs. James Howarth, Stand Lodge, Radcliffe, Lancashire.

SILVER WEDDING.

PEARSON—HUGHES.—On June 5th, 1894, at Douglas Church, Parbold, Southport, by the Rev. Fred. R. Pearson, Rector of St. Alban's, Manchester, brother of the bridegroom, and the Rev. H. P. Owen-Smith, Vicar of the parish, Reginald Spencer Pearson, M.R.C.S. Eng., and L.R.C.P. Lond., younger son of the late Rev. James Pearson, M.A., F.R.A.S., Vicar of Fleetwood, to Minnie Savile, youngest daughter of Mr. W. Hughes, of Wakefield, Yorks.

DEATHS.

BRODIE.—On May 27th, at 43, Augusta-gardens, Folkestone, George Bernard Brodie, M.D., F.R.C.P., of 65, Princes-gate, S.W., aged 79.

PARSONS-SMITH.—On May 28th, at Khartoum, suddenly, Eustace Macartney Parsons-Smith, M.B., B.S. Lond., Captain, R.A.M.C. (attached Egyptian Army), youngest son of the late Samuel Parsons-Smith, of Addiscombe, Croydon, aged 34.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.
The Pituitary. By W. Blair Bell. Pp. 348. 30s.
Injuries to Head and Neck. By H. Lawson Whale, M.D. With Preface by Colonel Frederick F. Burghard. Pp. 320. 15s.

CHAPMAN AND HALL, London. JOHN WILEY AND SONS, New York.
Biochemical Catalysts in Life and Industry—Proteolytic Enzymes. By Prof. J. Effront. Translated by Prof. S. C. Prescott. Pp. 752. 23s.
Fats and Fatty Degeneration. By Dr. M. H. Fischer and Dr. M. O. Hooker. Pp. 156. 9s. 6d.

CLARENDON PRESS, Oxford. HUMPHREY MILFORD, London.
Mammalian Physiology. A Course of Practical Exercises. By C. S. Sherrington, M.D., F.R.S. Pp. 156.

CONSTABLE AND CO., London.
Manual of Lip-Reading. By Mary E. B. Stormonth. Preface by the Marquess of Graham. Pp. 208. 5s.

FROWDE, H., and HODDER AND STOUGHTON, London.
Sterility in Women. By A. E. Giles, M.D. Pp. 227. 10s.
The Nervous Child. By H. C. Cameron, M.D. Pp. 202. 6s.
Psycho-Analysis and its Place in Life. By M. K. Bradby. Pp. 266. 8s. 6d.

GRANT RICHARDS, LTD., London.
Prostitution in Europe. By Abraham Flexner. Abridged edition. Pp. 304. 6s.

INTERNATIONAL REFORM BUREAU, Washington.
Patriotic Studies. Edited by Rev. W. F. Crofts. $1

KIMPTON, HENRY, London.
Textbook of Practical Therapeutics. By H. A. Hare, M.D. 17th ed. Pp. 1024. 28s.

LEWIS, H. K., AND CO., LTD., London.
A Vision of the Possible: What the R.A.M.C. might become. By J. W. Barrett, K.B.E., Temp. Lieut.-Col., R.A.M.C. Pp. 182. 9s.
Theory and Practice of Massage. By Beatrice M. Goodall-Copestake. 2nd. ed. Pp. 265. 9s.
A Treatise on Regional Surgery. By various Authors. Edited by J. F. Binnie, A.M., C.M. Vol. I., pp. 652; Vol. II., 656; Vol. III., 830. 32s. each vol.

Communications, Letters, &c., to the Editor have been received from—

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B.—Mr. W. B. Brierley, Harpenden; Mr. E. F. Bell; Prof. W. A. Bone, Lond.; Dr. A. Balfour, C.B., C.M.G., Lond.; Dr. F. A. Bainbridge, Lond.; Dr. J. H. E. Brock, Lond.; Miss L. M. Brooks, Lond.; Mr. Ll. E. W. Bevan, Salisbury, Rhodesia; Sir J. R. Bradford, Lond.; Miss W. E. F. Buckley, M.R.C.S., Lond.; Dr. E. A. Barton, Lond.; British Science Guild, Lond.; Mr. G. Bethell, Lond.; Rev. G. T. Brodie, Salisbury.
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Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

SOME PITFALLS OF GENERAL PRACTICE.[1]

BY H. MORELAND MCCREA, M.D., B.CH.R.U.I.

The Importance of a Routine Examination.

THE pitfalls of medicine are extremely numerous, but at the same time the avoidance of them, in the vast majority of cases, is entirely in our own hands. Ignorance is not, as a rule, the cause of mistakes, but much more commonly an inaccurate and inadequate examination of the case. The reason for this dates back to the period of education in our hospitals. When a student is qualified to go out into the world to practise medicine, of what does his armamentarium consist? As a rule a single instrument—a stethoscope! The cause of this lies in our present system of teaching. Is it ever suggested at the bedside, during clinical lectures, that the breathing apparatus begins at the nostrils and lips? Has a physician ever been seen taking a class round a ward with a head-mirror on his head, and, say in a case of bronchitis, examining the upper air passages? No, he spends his time teaching students physical signs in the chest which, rightly or wrongly, he thinks is the box containing the breathing apparatus.

In my day, and I believe it is the same to-day, there were special departments which dealt with eyes and their diseases, with affections of the throat, ear, and nose, and with disturbances of the pelvic organs, but the curriculum was so arranged that these departments were placed as side shows, and the student was left to fit in his studies in these special subjects when he could best spare the time. The whole evil lies in the fact that teaching is done in water-tight compartments, as it were, and there is in consequence a want of coördination to bring about the all-essential assimilation of knowledge gained in the separate departments. That a fixed routine examination is important in all cases the following illustration will show.

Some years ago a lady of 52 years of age consulted me. She had the characteristic appearance of advanced malignant disease, and on hearing her story this was confirmed. Her symptoms were mainly gastro-intestinal. My custom is to end my examination by an inspection of the nose and mouth and ears. In this case I found a tumour about the size of a hen's egg just above the umbilicus, freely moveable up and down. I rashly made up my mind that here was the site of the malignant disease, and was on the point of giving the patient a very serious prognosis of her condition when I remembered that I had not examined the nose and throat. On doing so I discovered a large polypus in the right nasal cavity, with a stinking discharge. I asked the patient how long she had had nasal trouble, and the answer was "for years," but she had not mentioned the matter as she had been told nothing could be done. I then advised her to take a dose of castor oil and to see me again. I saw her in two days' time, when the tumour had disappeared. The nose was operated upon some days later, and when I next saw her after some months she was perfectly well with a good healthy appearance.

The system of "spotting" a disease leads to more mistakes than anything else. One of the reasons for this I feel sure is that the practitioner takes on too many patients.

The Compleat Physician.

But now to go back to faulty and incomplete examination. I have said already that the only and usual weapon against disease in the hands of a general practitioner is the stethoscope. I think it would be well if the General Medical Council appointed a Ministry of Munitions for practitioners to see that each was properly equipped for the war on disease. I should like to see added a number of instruments the proper use of each one of which exposes a pitfall. To begin with, a head-mirror is essential, and with it an aural and nasal speculum and tongue depressor.

First, the aural speculum. How often does one see giddiness ascribed to all sorts of constitutional maladies and treated accordingly, when it is simply due to a plug of wax in the external auditory meatus?

Next we have the nasal speculum, of the three perhaps the most important and the least used, and many a patient would be saved from the miserable existence attendant on a chronic lung trouble had the nasal condition been discovered earlier. Septic nasal conditions are not by any means uncommon as the underlying cause of neurasthenia. True neurasthenia is a rare disease; as a symptom it is more

[1] A lecture delivered before the Royal Society of Medicine on April 30th, and here published in an abridged form.

frequently met with, and I feel sure the diagnosis would not be so often made were a proper investigation of the patient carried out; and this investigation must include a search for a septic nasal condition.

The next instrument included is a tongue depressor, preferably of the type with a ring hole at the tip of it for squeezing the tonsil in search of pus. Septic teeth and tonsils are the cause of so many constitutional disturbances, especially joint troubles, that it is necessary to lay stress on a thorough examination of the mouth.

A hammer for testing reflexes should also be included. We all know how often locomotor ataxia is passed over and the condition treated as acute gastritis. The necessity of testing reflexes was brought home to me a few weeks back. A patient came to consult me, having been sent home from the East on sick leave. The diagnosis he brought with him was neurasthenia, and after listening to his lengthy story of bodily and mental sufferings one felt almost compelled to accept the diagnosis as correct. He proved, however, to have Argyll Robertson pupils, with absence of knee-jerks.

Every practitioner should also be furnished with an instrument for registering the blood pressure. I would almost go so far as to say that every practitioner should know the blood pressure of all his patients after middle life. The cerebral thrombosis associated with a low blood pressure would not then be mistaken for a hæmorrhage. The former condition is as a rule associated with a weak cardiac action; indeed, often with a dilated heart, and requires stimulation—a line of treatment which would probably be followed by disastrous results in the case of hæmorrhage.

(To be concluded.)

MEDICAL STUDENTS IN SWITZERLAND.

STUDENTS attending the five Swiss medical schools during last winter session numbered 1704—1470 men and 234 women. 534 were foreigners, and these provided almost one-half (116) of the women students. To the foreigner Geneva is the most popular school, and then in descending order Berne, Zurich, Lausanne, and Basle. The numbers show in general a decrease of about 8 per cent. on those of the previous year.

THE IVORY CROSS.

A MEETING in aid of the Ivory Cross was held at 10, Downing-street, on May 21st. The meeting was held in the dining-room which, however, was quite unable to contain the large number of guests, and Mrs. Lloyd George subsequently addressed an "overflow meeting" in the drawing-rooms. Discharged soldiers are given dental aid by the War Office only when they can prove that their teeth have suffered as a result of the war. The Ivory Cross assists those who are unable to prove this, and extends its help to men of the mercantile marine and to the necessitous poor, including mothers and children, as well as to men discharged from the various services.

MALAY STATES HEALTH REPORTS.

THE subjoined references to medical matters are taken from reports for the year 1917 just presented to Parliament:—

Federated Malay States.

The population of these States (Perak, Selangor, Negri Sembilan, and Pahang) is estimated to be 1,244,018. During 1917 there were 34,763 births, an increase of 5426 compared with 1916. The birth-rate was 27·94 per mille. The deaths numbered 42,514, an increase of 5533, the rate being 34·7. Malaria accounted for 44·10 per cent. of the deaths. The rate of infantile mortality was 218·45 per mille. Dysentery and diarrhœa accounted for 4942 deaths; phthisis and pulmonary tuberculosis for 2446. There was an increase in deaths from beri-beri, the number being 1207 compared with 757 in 1916. Eight cases of plague with 7 deaths were reported from Perak, 8 cases of cholera from Selangor, and there were 96 cases of small-pox with 25 deaths, and 71 cases of enteric with 29 deaths in the four States. There were 3526 cases of ankylostomiasis with 411 deaths. Cases of venereal disease showed a decrease.

The medical institutions maintained by Government comprised 42 hospitals, 7 prison hospitals, 2 lunatic asylums, 3 leper asylums, and 15 outdoor dispensaries. In-patients to the number of 86,796 were treated, the deaths being 8237. The number of out-patients was 225,425. There were 669 lepers in the three asylums. The total number of patients treated at the Central Lunatic Asylum at Tanjong Rambutan was 1198 males and 297 females. There remained on Dec. 31st, 1917, 1135 patients, of whom 855 belonged to the Federated Malay States, 192 to the colony, and 30 to Johore; in addition, there were 58 criminal lunatics.

Immigrants to the number of 48,834 passed through the Port Swettenham Quarantine Camp; 1209 cases were treated in the camp hospital and 93 died. On 12 occasions ships arrived infected, 11 with small-pox and 1 with cholera. Returns were received from 997 estates, on which the average number of labourers employed was 214,927; in 1917 there were 3906 deaths, the rate being 18·17 per mille. The death-rates of the four principal towns were: Kuala Lumpur, 28·45 per mille; Taiping, 31; Ipoh, 32·67; Seramban, 55·35. Seramban appears to be particularly unhealthy. Anti-malarial measures are in progress there, and it will be interesting to watch their effect on the malaria-rate.

At the Institute of Medical Research a number of tests have been made of extracts of rice-polishing prepared in England by a method devised in the Kuala Lumpur laboratory. The preparations have been issued for trial in the treatment of beri-beri in hospital practice by Government medical officers and private practitioners. The Acting Director states that the reports, while by no means unanimous, permit the conclusion that this line of treatment has been of definite value in early and acute cases of beri-beri, while in old and chronic cases benefit was slight or absent. Medical practitioners have utilised fully the extended facilities provided for the diagnosis of venereal diseases by laboratory methods.

During the year there were 1355 judicial inquiries in connexion with sudden deaths or deaths under suspicious circumstances; 150 were homicides or resulted from minor breaches of the law, and 121 were suicides. Forty persons were killed by wild animals, and rewards were paid for the destruction of 468 crocodiles (also 2768 crocodiles' eggs), 69 tigers, 23 leopards, 4 panthers, and 99 snakes.

Unfederated Malay States under British Protection.

These States comprise Johore, Kedah, Perlis, Kelantan, and Trengganu. In Johore the general health in 1917 was poor, chiefly owing to the prevalence of malaria, beri-beri, and pulmonary complaints. Malaria was responsible for 30·4 per cent. of the total number of deaths. Beri-beri was the cause of 9·7 per cent. of the total deaths and was prevalent all over the country, especially on the rubber estates. Pulmonary diseases caused 911 deaths; dysentery and diarrhœa were responsible for 616. There were only 6 cases of small-pox. One case of suspected cholera was reported. No case of plague occurred. The number of vaccinations performed was 8798, and progress is being made in educating the people to appreciate the benefits of the process.

In the State of Kelantan the medical department has inaugurated a system of medical inspection of children at the public markets. Very little shyness was shown, and what there is may be expected to disappear rapidly. Malaria, intestinal affections, and skin diseases are widespread in Kelantan, and it is to the younger generation that the authorities look for the acceptance and spread of the first principles of hygiene. In April and May, 1917, sporadic cholera occurred; 35 cases were reported, with 24 deaths. Dr. W. J. Geale appears to be doubtful whether the out-break was true cholera or pseudo-cholera with a malarial origin. One case only of small-pox was reported. There were 103 admissions for ankylostomiasis to the State Hospital.

In the State of Trengganu, in the absence of any qualified medical officer, there is much preventable disease and mortality; the ravages of small-pox, beri-beri, and venereal disease are all evident. There is reason to believe that the death-rate of infants and of women in and after childbirth is distressingly high. The Sultan employs a Japanese as his private medical attendant. The Malay population is dependent on the services of native medicine men ("bomoh"); these men rely mainly on purgatives, massage, and incantation, but they are capable of setting bones with considerable skill. Mr. H. Gild, the only European merchant in Trengganu, has a knowledge of surgery and antiseptics, and makes generous use of it whenever his help is called for. There is no Government hospital or asylum in Trengganu; lunatics, according to Malay custom, are left at large until a homicidal tendency is observed; they are then confined in stocks in the houses of their relations or committed to the gaol. There were 3 cases of homicide by lunatics during the year; 2 of these were committed by a man who was convicted of murder five years ago and sentenced to 10 years' imprisonment; he was released from gaol to enable him to go to Mecca on pilgrimage and had been at large since his return.

In the State of Kedah the birth-rate in 1917 was 28·17 per 1000 on an estimated populated of 285,000 and the death-rate 23·32 per 1000. There were 39 deaths from small-pox but none from cholera. The number of persons treated at the hospitals was 7650, and at the Government dispensaries there were 50,698 out-patients. A new hospital was opened at Sungei Patani. Dr. H. S. Sugars, D.S.O., M.C., was on leave throughout the year. He was severely wounded in France in May, 1917.

No serious infectious diseases were reported in the State of Perlis, where the conditions of health appear to be not unhealthy. The birth-rate for the year was 23·8 per 1000 and the death-rate 19·0. The chief diseases treated in

the Government hospital were malaria, skin diseases, venereal diseases, and dysentery.

State of Brunei.—In 1917 there was rather more than the normal amount of sickness. This was probably due in the main to the unpropitious weather, but much illness and not a few deaths are traceable to the practice of eating unripe and unsuitable fruit. Some of that sold by the Kedayans is more fitted for the consumption of animals than for that of human beings. The Government dispensary continued to be very popular and steps are being taken to extend its sphere of usefulness. The rainfall of 1917 outdid even that of 1916 in persistence and intensity; 131·18 inches were recorded.

ROMAN OCULIST SEALS.

IT has been reasonable to anticipate that the immense amount of trench digging in France and Flanders would have disinterred several specimens of ancient Roman oculist seals, but this does not appear to have been the case. We can, however, announce the existence of two of these relics whose inscriptions have not hitherto been published. Both of them have been lying in German museums, one at Rottweil, in Wurtemberg, and the other at Cologne. The text of one has been published by the well-known editor of all these formulæ known, up to the year 1900, in the Corpus of Latin Inscriptions, M. le Commandant Esperandieu. His rendering, which may be accepted as definitive, is as follows:—

Honesti Laulini Dialepidos ad asprit[u]dines.
" " Diasmisus ad veteres.
" " Dialibanum ad impetum lippitudines.
" " Diagesamius ad suppuratione[s].

This inscription, whilst adding one more to our now long list of oculist names, does not provide any addition to the number of collyria or to that of the titles of maladies. But it possesses its value for medical archæology as illustrating the comparative popularity among the profession for the use of certain remedies which it enumerates.

As when previously describing the discovery of such seals, we add some commentary upon the text engraved upon this specimen. Its first collyrium, Dialepidos, was one much favoured by these Latin practitioners. As the name discloses, it was of metallic basis and, we know from other sources, consisted of scales of protoxide of copper, the same ingredient as that employed by ancient ceramists to obtain a green-tinted glaze. The word was a derivative λεπίς; scales, or flakes; and Dioscorides, in his περὶ ὕλης ἰατρικῆς, in the eighty-ninth chapter, entitled περὶ λεπίδος alludes to the use of a preparation of copper by oculists. Pliny mentions the similar employment of a ferrous collyrium by them, "squama ferri ex acie aut mucronibus ..... contra epiphoras oculorum assumitur."

Aspritudines was the granulation of the conjunctivæ and appears identical with the malady, scabrities, mentioned upon several of these seals. Diamisus was the Cyprian "Misy." Marcellus supplied the recipes for the two collyria containing it, and Pliny gives rather a lengthy description, saying it was, when good, of a golden colour, and it would disperse even inveterate granulations of the eyelids. Galen, when travelling in Cyprus, investigated the production, explaining its derival from Chalcitis. The word "veteres," when upon the signets, is usually preceded by "cicatrices," and French savants consider these to be those of the cornea. Upon one stamp the words "recentes cicatrices" occur. "Dialibanum," identical with the substance also called thurinum, was made from incense. Marcellus gives a collyrium of this name as dialibanos, in which the formula omits incense (De Medicamenta, viii., col. 280). He also, however, specifies another "dialibanum" in which incense was employed. Both Celsus and Galen advise its usage, and the latter says, referring to ocular disease, "Et expurgare et implere quæ in oculis consistunt ulcera videtur." Dioscorides confidently recommends its application.

The classic medical authors who enshrined their science in veracious verse, sang the praises of incense for use in a salve. Serenus Sammonicus does so in his canto denominated Oculorum dolori mitigando; and Macer Floridus versifies its virtues thus in the commencement of his poem commemorating them.

Thus calidum siccumque gradu dixere secundo
Lumina clarificat, lacrymo si solvitur ovi
Contritum vel femineo cum lacte tepenti.

Macer Floridus, or Aemillius Macer, it may be added, was a mediæval author of whom little is known, except that his Latin is difficult to construe. In accord with this Dioscorides's sentence reading "Lac muliebre turi trito admixture oculis ab ictu cruoresuffusis instillatur," becomes interesting. Impetum lippitudines has been fully commented upon in our columns when previously treating of these seals' inscriptions.[1] It was the term used for the stages of acute ophthalmia before it was accompanied by any mucous secretion. It is one of the ocular diseases most frequently alleged to be combated by these collyria. Diagesamius, or diagesamias, is seldom recommended. Upon a signet in the Nantes Museum it is advised as remedy ad lippitudinem. It is the Greek Διὰ γῆς Σαμίας, several times mentioned by Galen, Oribasius, Aetius, and other writers. Some of the Greeks identified it with the collyrium they called Ἀστήρ. This, however, is not quite certain, as Latin authors make a distinction between them. Samian earth had for many centuries a medical fame. The term "suppurationes" carries its own explanation. This is the first time that diagesamius has been suggested for their cure.

The inscription upon the seal at Cologne is apparently partly obliterated; but sufficient of its text is legible to warrant our shortly quoting and commenting upon it. Perhaps some member of the Royal Army Medical Corps stationed in that city could inspect it in the museum. The name of its oculist owner was Ti. Julius Jasonis.

[1] THE LANCET, 1903, ii., 725.

THE GUARDIANSHIP SOCIETY.

THE annual meeting of the Guardianship Society for the Mentally and Physically Defective was held at 50, Brunswick-square, Hove, on May 28th, Mrs. Broadbent kindly throwing open her drawing-room for the occasion. The chairman of the committee, Mr. J. A. Nix, J.P., of Crawley, presided, and an address eulogising the splendid work undertaken by the society was given by Dr. R. J. Ryle, J.P. He said that he spoke as an outsider, but he knew from experience what a valuable work the society was doing. He thought the claims of the mentally deficient deserved our first consideration, and he spoke with hope of the future benefit which the Mental Deficiency Act, as yet in its infancy, would probably be able to confer. Dr. Ryle went on to say that as the children passed their schooling days it was then the surroundings of a happy family life told, rather than the stilted existence of an institute. In the former existence individual care was possible; an institute provided the same treatment for all, it being impossible to treat each case as it deserved. Tribute was paid to Miss Grace Woodhead, the honorary secretary, who had been instrumental in founding the society. The society boards the mentally and physically deficient children in carefully chosen families; assists them to obtain training and employment suited to their abilities; and visits them and takes a friendly interest in their moral and material welfare. It has cared for 463 patients during the year just ended, as compared with 345 in the previous year, and the number remaining at the end of the year was 289 as compared with 179 at the close of 1917.

A CORRECTION.

IN our issue of May 24th we reported a series of experiments by Dr. Chr. Engelbreth on the transmission of "Spanish disease" through fleas, giving the incubation period in the experimental subject as "from 30 hours up to 10 days." Dr. Engelbreth writes to point out that the incubation period only exceeded two days in one of the seven positive cases, and then was only three days. The fleas remained infectious during a period of 30 hours up to 10 days.

F. C. desires to know of any institution in London where the Berthollet steam treatment can be obtained by private patients.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

NOTICE: WHITSUNTIDE HOLIDAYS.

The Library and Offices of the Society will be closed from Saturday, June 7th, to Monday, June 9th (both days inclusive).

The Royal Society of Medicine keeps open house for medical officers of all the Allied Forces, and invites them to make free use of its library and rooms. The Emergency Post Graduate Scheme, under the charge of the "Fellowship of Medicine," is also open to all medical officers. Particulars of this will be supplied by the Secretary, Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

THURSDAY, June 12th.—5 P.M., Croonian Lecture:—Prof. G. E. Smith: The Significance of the Cerebral Cortex.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY, June 11th.—4 30 P.M., Lecture:—Dr. Fenton: Diagnosis of Early Pulmonary Tuberculosis.